ORGANOMETALLIC COMPOUNDS

Abstracts of literature and patents relating to compounds which contain at least metal, carbon and hydrogen atoms

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CONTENTS

2. Chemistry, production and use in syntheses

Author, Patentee and Patent Number index for issue 1 will appear with issue 2

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Notes to Readers

In 1980 it is proposed to publish fortnightly in 26 issues, each pair of issues containing about 400 abstracts, in two volumes with indexes.

Please note that claims for missing issues must be made promptly, within 3 months, since large stocks of back issues are not held.

For patents abstracts the dates given are the Application, Publication and Convention dates.

International agreement has produced a series of two letter codes for indicating the country of origin or filing for patents. These are as follows, with earlier codes shown in brackets:

United Kingdom	GB		Russia	SU	
United States	US		Japan	JP	(JA)
France	FR		South Africa	ZA	
Germany (West)	DE	(DT)	Finland	FI	(SF)
Netherlands	NL		Hungary	HU	
East Germany	DD	(DL)	Spain	ES	
Switzerland	CH		Sweden	SE	(SW)
Austria	AT	(OE)	Eire	IE	(EI)
Poland	PL	(PO)	Mexico	MX	
Czechoslovakia	CS		Luxemburg	LU	
Europe	EP		Patent Cooperation Treaty	WO	

Arrangement of the section 'Chemistry, production and use in synthesis'

The arrangement of the abstracts in this section is based broadly on the periodic table with the A subgroups followed by the Group VIII metals and then the B subgroups since in this way the transition metals are grouped together. It was felt from the first that aluminium falls more happily into the group preceding the Group IIIA metals rather than with gallium, indium and thallium and this has been confirmed by experience. The order of the groups is as follows:

Li, Na, K, Rb, Cs, Fr	Ti, Zr, Hf	Abstracts relating to several metals
Be, Mg, Ca, Sr, Ba, Ra	V, Nb, Ta	
Al	Cr, Mo, W	Cu, Ag, Au
Sc, Y, lanthanides	Mn, Tc, Re	Zn, Cd, Hg
U and Th	Fe, Co, Ni	Ga, In, Tl
Actinides, Pa, Cm, Am, etc.	Pt, Pd, Ru, Rh, Os, Ir	As, Sb, Bi
		Se, Te, Po

In the more industrial sections of the journal, abstracts tend to be placed in alphabetical order of company to check on duplicate abstracts of the same patents from more than one country.

Where possible chemical compounds and analytical reagent names are abbreviated, e.g. EDTA, DMSO, Tiron.

Group abbreviations

phenyl	Ph	ethyl	Et	cyclohexyl	Cx
cyclopentadienyl	Cp	propyl	Pr	metal	M
phthalocyanine	Pc	acetate	OAc	alkyl	R
ferrocenyl	Fc	butyl	Bu	aryl	Ar
methyl	Me	amyl	Am	halogen	X

Unless otherwise indicated, all parts and percentages are parts and percentages by weight.

CHEMISTRY, PRODUCTION AND USE IN SYNTHESES

Book Notice

METAL AND METALLOID AMIDES
Syntheses, structures and physical and chemical properties
M. F. Lappert, P. P. Power, A. R. Sanger, R. C. Stivastova
Ellis Harwood Ltd., Chichester, 1980, 847pp, £50 (about $120)

In this magazine the line is drawn for non-metals at selenium and tellurium and boron and silicon are excluded. The present authors reverse this and exclude Se and Te but include B and Si in their survey of compounds containing $-NH_2$, -NHR and $-NR_2$ ligand groups (including Vitamin B12 coenzyme, chlorophyll and haemin). The first half of the book is concerned with the structure and synthesis of the amides of the metals, arranged in periodic table order and the second half within their properties and uses. Much of the information is given in tables. Over 3000 references are covered up to July 1978. The book is the standard academic review article in expanded form and makes no pretence to include industrial chemistry. While the poly(N-alkyl iminoalanes) merit a page, their use as polymerisation catalysts is dismissed in half a sentence. Anic SpAaare not to be found in the authors index! However patents are to be seen in the list of references and perhaps appreciation is growing of the information they contain. The second part has more hints of the real world outside the university.

1. GROUP IA METAL MIXED-LIGAND COMPLEXES
A. K. Banerjee et al. J. Indian Chemical Society, December 1978, 55, 1308-11
The preparation and some properties of more than 40 complexes MLL' are briefly reported, where L is a hydroxy- or amino-carboxylic acid, L' is 2-nitrosonaphthol and M is a Group IA metal.

2. GROUP IA AND IIA METAL COMPLEXES OF A MACROCYCLIC DIAZA POLYETHER
G. Ritzler et al. Comptes Rendus, 9th July 1979, 289, 33-35
The electrochemical oxidation of complexes LM at a gold electrode was investigated, where L is 1,10-diaza-4,7,13,16,21,24-hexaoxa-888 bicyclo hexacosane and M is a Group IA or IIA metal.

3. GROUP IA METAL DIKETONATE COMPLEXES
B. B. Martin et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1503-6
Chelating tendencies of β-diketones of type RCOCR'OR", e.g. dipivaloylethanate and fluorinated acac derivatives, towards Li, Na, K, Rb and Cs ions in dioxane-water have been investigated. The chelates possess useful therapeutic properties.

4. GROUP IA METAL ALKYLENES
J. Allison et al. J. American Chemical Society, 15.8.79, 101, 4998-5009
The complexes $[ML]^+$ (M is Na or Li, L is ethylene, butylene, propene, CH_2CO or hexene) have been prepared and characterised.

5. LITHIUM, SODIUM, POTASSIUM ACETATE
E. H. Braue et al. J. American Chemical Society, 29.8.79, 101, 5303-09
The solvolysis of alkyl-p-hydroxybenzoates in fused Li, Na, K acetate eutectic is reported.

6. GROUP IA ALKYLACETYLACETONATES
M. Raban et al. J. American Chemical Society, 29.8.79, 101, 5178-82
A ^{13}C nmr spectral study of the Na salts of 2,4-pentanedione, 2,4-hexanedione, 3-methyl-2,4-pentanedione and 3-ethyl-2,4-pentanedione is reported.

7. GROUP IA METAL-BISMUTH-THIOUREA COMPLEXES

H. Ladzinska-Kulinska, Thermochimica Acta, October 1979, 33, 293-300

Thermal decomposition reactions of complexes $M[Bi(SCN)_4L_2]$ were investigated, where L is thiourea and M is Li, Na, K, Rb or Cs.

8. GROUP IA ALKOXY IN CINNAMALDEHYDE SYNTHESIS

US 4,172,090. BASF. A:12.5.77: P:23.10.79: C:22.5.76 (DE) as 23,169-70

The first stage of synthesis involves reacting a Group IA alkoxy, e.g. Li, K or Na methoxy, with isoxazole to form cyanoacetaldehyde.

9. GROUP IA METAL (HYDROXYPHENYL)SULPHONES

GB 1,556,489. BASF. A:4.11.76: P:28.11.79: C:5.11.75 (DE) as 49,529

Aromatic polyether sulphones are prepared by condensing a di-Group IA metal, preferably Na or K, salt of bis-(4-hydroxyphenyl)sulphone with an aromatic ether.

10. GROUP IA OR IIA METAL CITRATE FOR DISINFECTANTS

GB 2,021,947. DHP Corp. A:21.5.79: P:12.12.79: C:26.5.78 (US) as 909,829

A water-dilutable antiseptic and disinfectant contains 45-70% Group IA or IIA metal hypochlorite, 10-35% Group IA or IIA metal hydroxate and 2-35% Group IA or IIA metal citrate, e.g. Na citrate.

11. GROUP IA METAL PHENOXYS

US 4,171,453. Dow Chemical. A:22.2.78 as 879,935: P:16.10.79

Dry Group IA phenates can be more efficiently carbonated under pressure to give a Group IA metal phenol carboxylate if they are finely divided and the carbonation temperature is below 135°C for at least part of the time. A useful product of this reaction is Na salicylate.

12. SODIUM AND POTASSIUM HYDROXYAMANDELATES

NL 78.05436. ICI. A:19.5.78: P:21.11.79: Non-Con.

Na and K hydroxyanandelate synthesis intermediates are obtained by reacting phenol, glyoxylic acid and a Na or K hydroxide.

13. GROUP IA OR IIA ALCOHOLS

US 4,172,954. Monsanto. A:2.9.77 as 830,294: P:30.10.79. Div Ex 4,118,420

Organic compounds with a substituent of formula $-O-C(COOM)_2-\Phi-CH_2COOM$ (M is a Group IA or IIA metal or NH_4) are used in detergent compositions.

14. GROUP IA METAL POLYALKYLENEOXYSULPHOXY SALTS

GB 2,021,144. NL Industries. A:4.12.78: P:28.11.79: C:5.12.77 (US) as 857,505

The fouling of equipment such as heat exchange surfaces used in hydrocarbon processing is prevented by the addition of a complex $M[R-(OCH(R')-CH_2)_nSO_x]$ (R is 6-15C alkyl or a 8-10C alkylphenyl radical, R' is H or Me, n is 3-8, x is 3 or 4, M is a Group IA metal or NH_4) to the hydrocarbon.

15. GROUP IA METAL CHLOROPROPIONATE AND PHENOXYS

US 4,173,709. Rhone-Poulenc. A:8.2.77: P:6.11.79: C:17.12.65 (FR) as 42,858

Dextrorotatory 2-phenoxypropionic acids are prepared by heating a Group IA metal dextrorotatory 2-chloropropionate with a Group IA metal phenate in an inert solvent under reflux.

16. GROUP IA METAL SALTS OF POLYHYDROXYCARBOXYLATES

GB 1,557,760. Solvay. A:24.4.78: P:12.12.79: C:25.4.77 (LU) as 196

Group IA metal salts, especially Na and K salts, of polyhydroxycarboxylates are prepared from similar salts of higher mol wt by treatment with an oxidising agent. A suitable product is Na poly α-hydroxyacrylate and they are used as sequestering agents for detergents and as dispersing agents.

17. GROUP IA METAL POLYHYDROXYACRYLATES

GB 1,557,771. Solvay. A:24.4.78: P:12.12.79: C:25.4.77 (LU) as 195. Add to 1,450,758

Group IA metal salts, e.g., those of Na and K, of poly-α-hydroxyacrylates are prepared by reacting a suitable metal salt in the presence of water, with a solid polylactone derived from the respective polyhydroxyacrylic acid in the liquid phase, followed by reaction with a suitable oxidising agent.

18. SODIUM BENZENE SULPHONAMIDE

S. N. Katgeri et al. Bull. Societe Chimique France. Sept/Oct 1979, I, 381-86

The kinetics of the oxidation of some amino acids by Na chloro-4-methyl-benzene sulphonamide have been determined.

19. SODIUM AND POTASSIUM CHLOROSALICYL BORATES

A. A. Teraud et al. Izvestiya AN Latviiskoi SSR, 1979, (5), 515-19

The preparation and some properties of Na and K bis(5-chlorosalicyl) borates $[M(ClC_6H_3OCO_2)_2B]$ and their solvates with, e.g. acetone, are reported.

20. SODIUM TOLUENESULPHONATE ALKYLATION AGENT

J. Wildeman, A. M. van Leusen. Synthesis, September 1979, 733-34

Sulphones are obtained by reacting aryl halides with Na toluene sulphinates.

21. SODIUM PHOSPHONOTOSYL HYDRAZONE REACTIONS

A. Ulman, M. Sprecher. J. Organic Chemistry, 12.10.79, 44, 3703-7

When the Na salt of dimethyl acetylmethylphosphonate tosyl hydrazone is heated, the dimethoxyphosphonyl anion is eliminated while UV irradiation produces a phosphonyl olefin.

22. SODIUM ALKOXY COMPLEXES

P. P. Rodionov et al. Kinetika i Kataliz, 1979, 20, (5), 1327-30

The kinetics of reaction between alkoxypentafluorobenzenes and RONa was investigated, where R is Me, Et, Pr, Bu or pentyl.

23. SODIUM ALKOXY COMPLEXES

N. V. Ptitsyna et al. Doklady AN SSSR, 1979, 247, (6), 1412-15

The nmr spectra of Na complexes with ethylene oxide, propylene oxide, THF or polyethylene oxide were measured.

24. SODIUM METHOXY CATALYST

GB 1,557,266. Ciba-Geigy. A:21.12.76: P:5.12.79: C:23.12.75 (CH) as 16,702

NaOMe is used as catalyst for the production of mixtures of phosphates for use as processing additives for plastics and rubber.

25. SODIUM OR POTASSIUM ANTHRAQUINONE SULPHONATES

GB 2,021,099. Mitsui Toatsu. A:9.4.79: P:28.11.79: C:19.5.78 (JP) as 58,878

Na and K salts of substituted anthraquinone sulphonic acids are oxidation-reduction reagents for wet desulphurisation processes.

26. SODIUM CARBOXYLATES

GB 1,556,999. Shell. A:31.10.75: P:5.12.79: Non-Con.

The complex Na 2-cyano-3,3-dimethyl-4-pentenoate is specifically claimed and is used in the preparation of insecticidal 2[2,2-dichlorovinyl)-cyclo-propanecarboxylic acids.

27. SODIUM BENZOATE

EP 5574. Stamicarbon. A:12.5.79: P:28.11.79: C:19.5.78 (NL) as 5415

Benzyl benzoate formed as byproduct in the oxidation of toluene to benzoic acid is valorised by hydrolysis with sodium hydroxide, forming benzyl alcohol and Na benzoate.

28. SODIUM DIALKYLAMINOALKYLENEOXY COMPLEXES

EP 5235. Union Carbide. A:30.4.79: P:14.11.79: C:1.5.78 (US) as 901,812

Bis(N,N-dialkylamino)alkyl ethers are obtained by reaction of $R_2NR'ONa$ with sulphuryl chloride, thionyl chloride or a chlorosulphonic acid.

29. LITHIUM-UREA COMPLEX

Kh. Suleimanov et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1732-36

The crystal and molecular structure of $LiSO_4$-3 urea was determined and refined.

30. LITHIUM ACETATE

T. N. Rao et al. Indian J. Chemistry, August 1979, 18A, 123-25

Conductances of LiOAc solutions in water, methanol and water-dioxane mixtures were measured.

31. LITHIUM DIPHENYLMETHYLENEAMINO ADDUCTS

A. J. Banister et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1415-19

Reaction between Ph_2CNLi and the chlorides SCl_2, S_2Cl_2, $SOCl_2$ and SO_2Cl has been used to prepare methyleneamino derivatives of sulphur compounds.

32. LITHIUM METHYL IN TRICYCLOHEPTANE PRODUCTION

R. M. Cory et al. Synthetic Comm, August 1979, 9, 735-40

The dibromocarbene adduct of 1-methylcyclohexene reacts with LiMe to give tricycloheptanes and tricyclooctanes.

33. LITHIUM-DIBROMOETHYL COMPLEX

D. Seebach et al. Angewandte Chemie in English, October 1979, 18, 785-86

The nmr spectra of $MeC(Br)_2Li$ were studied.

34. LITHIUM-t-BUTYL

G. Sleiter et al. J. fur praktische Chemie, 1979, 321, (4), 876-77

$Li(tBu)_3$ is obtained in improved yield, using Smith's method (J. Organometallic Chemistry, 1974, 82, 1) if the internal surface of the reaction flask is pre-etched with carborundum or hydrofluoric acid.

35. LITHIOCINNAMONITRILE PRODUCTION

R. R. Schmidt, H. Speer, Synthesis, October 1979, 797-98

Li diisopropylamide readily lithiates cinnamonitrile and the Li atom may be replaced by electrophilic molecules.

36. LITHIUM BIS(TRIMETHYLSILYL)MALONATE

J. L. van der Baan et al, Synthesis, October 1979, 787-88

LiBu reacts with bis(trimethylsilyl) malonate to lithiate the central carbon atom and this adds a carbonyl residue to give a keto acid.

37. LITHIUM TOLYL IN CURCUMENE SYNTHESIS

S. S. Hall et al. Synthesis, September 1979, 698-99

Li tolyl adds to the carbonyl group of methyl heptadienone to give a Li alkoxy group which is converted by ammonia to curcumene.

38. DILITHIATED DIKETONATES
H. Hitoi et al. Synthesis, August 1979, 621-22
Li butyl or diisopropylamide react with diketones such as methyl acetoacetonate and reaction with diphenyl disulphide produces a phenylthiodiketonate.

39. LITHIUM DICHLOROMETHYL REAGENT
J. F. Normant et al. Synthesis, July 1979, 502-4
$LiCHCl_2$ in the presence of HMPA gives almost quantitative alkylation of primary alkyl halides.

40. LITHIUM ALLENYL REACTION WITH BUTADIENE MONOXIDE
J. Gore et al. Synthesis, July 1979, 508-10
Li allenyls such as Li propadienyl or 3-methyl-1,2-butadienyl react with the epoxy ring to give lithiated products which are intermediates for vinyl alcohols.

41. LITHIUM DIPHENYL ETHER, SULPHIDE AND AMINE CYCLISATION
N. S. Narasimhan, P. S. Chandrachood. Synthesis, August 1979, 589-90
LiBu reacts with $PhYPhNH_2$ (Y is O, S or NH) to give a dilithio product which cyclises to benzooxazepine and its thia and aza analogues.

42. LITHIUM PINAN DIOL REAGENT
J. Hutton et al. Synthetic Comm., September 1979, 9, 799-808
A prostaglandin precursor can be sterically reduced using bulky Al hydride reagents obtained from Li/Al hydride and pinan diol.

43. LITHIUM ALKYLS IN VINYL BROMIDE ALKYLATION
R. B. Miller, G. McGarvey. Synthetic Comm., September 1979, 9, 831-39
Li butyls react with bromodecene to give lithio derivatives which can be alkylated with EtI. The product depends on the use of n-, s- or t-butyl groups.

44. LITHIUM AND LITHIUM-COPPER NITROALKANES
D. Seebach, F. Lehr. Helvetica Chimica Acta, 31.10.79, 62, 2239-57
Primary nitroalkanes are deprotonated twice by LiBu; these derivatives and their LiCu equivalents are useful allylation reagents. pp 2258-75 cover the reactions with carbonyl compounds.

45. LITHIUM ALUMINIUM BUTOXY HYDRIDE REDUCING AGENT
H. C. Brown, S. Krishnamurthy. J. Organic Chemistry, 12.10.79, 44, 3678-82
$LiAl(OBu)_3H$ with triethyl borane forms a very good agent for the reductive opening of cyclic ethers.

46. LITHIUM BENZODIAZEPINES
FR 2,411,835. CRC. A:14.12.77: P:(-): Non-Con.
Li salts of 2,2-dihydroxy-5-phenyl-3-carboxy-2,3-dihydro-1H, -1,4-benzodiazepines, which have sedative action, are described.

47. LITHIUM FUROYL
US 4,173,705. Laboratorios Made. A:6.10.78: P:6.11.79: C:7.10.77 (ES) as 462,990
2-Cyano-4-methylpyridine is reacted with Li furoyl followed by acid hydrolysis to give 2-(2-furoyl)-4-methylpyridine which is then reacted with iodide to give 2(2-furoyl)-1,4-dimethylpyridinium iodide which is an analgesic.

48. POTASSIUM NITROBENZISOXAZOLE CARBOXYLATE
J. Smid et al. J. American Chemical Society, 12.9.79, 101, 5765-69
The decarboxylation of K6-nitrobenzisoxazole-3-carboxylate catalysed by various crown ethers and their polymers has been studied.

49. POTASSIUM BUTOXY IN BENZAMIDE ALKYLATION
T. Y. Luh, S. H. Fung. Synthetic Comm., August 1979, 9, 757-63
Benzamides react with KOtBu in the presence of a crown ether to achieve alkylation of the amides.

50. POTASSIUM PHENOXY REAGENT
G. Casiraghi et al. Synthesis, October 1979, 824-25
K phenoxy reacts with trichloroacetaldehyde to give trichlorohydroxyethyl phenol.

51. POTASSIUM TRIISOPROPOXYBOROHYDRIDE CARBONYLATION REAGENT
H. C. Brown et al. Synthesis, September 1979, 701-2
Aldehydes or alcohols are produced from olefins by hydroboration followed by carbonylation using $K(iPrO)_3BH$.

52. POTASSIUM AMINOPROPYLAMIDE IN RING ENLARGEMENT
E. Stephanon et al. Helvetica Chimica Acta, 1.9.79, 62, 1932-43
N-aminoalkyl lactams undergo ring enlargement in the presence of K aminopropylamide.

53. POTASSIUM PHENOXY IN ETHER SYNTHESIS
J. Kelly et al. Polymer, September 1979, 20, 1048-50
K phenoxy reacts with butyl bromide to give butyl phenyl ether in the presence of solid polymeric phase transfer catalysts.

54. POTASSIUM-CROWN ETHER COMPLEXES
C. Jollcoeur et al. J. Physical Chemistry, 18.10.79, 83, 2806-08
The heat capacity behaviour of KCl complexes with 18-crown-6 in aqueous solution was studied.

55. POTASSIUM AND ZINC BENZOATES
AT 352,704. Rhone-Poulenc. A:24.11.77: P:10.10.79: C:9.12.76 (FR) as 37,838
In a continuous process, phthalic acid is obtained by reaction of carbon dioxide with a suspension of K benzoate in a terphenyl medium in the presence of a catalytic amount of Zn benzoate.

56. RUBIDIUM AND TETRAMETHYLAMMONIUM TETRAFLUOROMANGANATES
V. Kaucic et al. J. Chemical Society, Dalton Trans., 1979, (10), 1512-15
$NMe_4[MnF_4(OH_2)_2]$ and the Rb analogue have been characterised by three-dimensional Patterson-Fourier techniques.

57. CAESIUM TRIMETHYL-DICARBA-NIDO UNDECABORATE
N. I. Kirillova et al. Izvestiya AN SSSR, 1979, (11), 2747-81
The crystal and molecular structure of $Cs(Me_3C_2B_9H_9)$ was determined and refined.

58. CALCIUM LACTATE OR CMC
GB 2,021,413. Upjohn. A:18.5.79: P:5.12.79: C:26.5.78 (US) as 909,924
The addition of either Ca lactate or Ca carboxymethyl cellulose to ketazolam stabilises it.

59. CALCIUM AMINOCARBOXYLATE COMPLEXES
B. L. Barnett et al. Inorganic Chemistry, October 1979, 18, 2674-78
Crystal structures of Ca(CaEDTA) and Na(Ca nitrilotriacetate) have been obtained.

60. CALCIUM AND MAGNESIUM COMPLEXES
EP 5859. Oronzio de Nora Impianti. Elettrochimici SpA. A:1.6.79: P:12.12.79: C:2.6.78 (IT) as 24,141

Ca and Mg ions are removed from sodium chloride brines prior to electrolysis by extraction with a solution containing two synergistic complexing agents: (a) thenoyl trifluoro acetone or 1-phenyl-3-methyl-4-benzoyl-pyrazol-5-one and (b) tributyl phosphate or trioctylphosphine oxide.

61. GRIGNARD-IMINOXY RADICAL REACTIONS
C. Schenk, T. J. de Boer. Tetrahedron, 1979, 35, (18), 2119-22

The reaction of the di-t-butyliminoxy radical with RMgX or LiR (R is methyl, butyl, benzyl or phenyl) gives dibutyl ketoxime.

62. PHENOXY MAGNESIUM GRIGNARDS IN CHALCONE SYNTHESIS
G. Sartori et al. Tetrahedron, 1979, 35, (17), 2061-65

A highly selective synthetic route for hydroxychalcones is based on the reaction of cinnamic aldehydes with ArOMgBr where Ar is phenyl with optional methoxy, methyl and methylamino substituents.

63. MAGNESIUM METHYLIMIDAZOLE
R. Sarma et al. J. American Chemical Society, 15.8.79, 101, 5015-19

The molecular structure of ($MgL_2L'_2$) L is 2,4-dinitrophenoxide, L' is methylimidazole) has been determined.

64. MAGNESIUM AND MANGANESE IMIDAZOLIDINE-CARBOXYLATES
T. Tsuda et al. Chemical Comm., 1979, (18), 797-98

Mg and Mn complexes of 2-oxoimidazolidine-1-carboxylic acid have been prepared and characterised.

65. MAGNESIUM CARBOXYLATES FOR HOT END COATINGS
GB 2,021,544. Lam Partnership. A:30.5.79: P:5.12.79: C:30.5.78 (US) as 911,017

'Hot end' coatings of vitreous articles are produced by forming refractory Mg oxide coatings from aqueous solutions of, e.g., Mg formate, acetate, citrate, lactate or benzoate.

66. METHYLBUTYL MAGNESIUM BROMIDE
GB 1,556,994. Defence Secretary. A:3.9.75 as 36,211: P:5.12.79. Add to 1,433,130

The Grignard reagent Mg (+)2-methyl butyl bromide is used in the preparation of optically active cyano-biphenyl compounds, for use in liquid crystals.

67. CALCIUM, STRONTIUM, BARIUM AND ALUMINIUM IMINOBISACETATES
US 4,173,002. US Navy Secretary. A:20.3.78 as 888,122: P:30.10.79

A method of lasing with the Ca, Sr, Ba or Al complexes of 7-hydroxy-coumarin-8-methyleneiminobisacetic acid is reported.

68. ORGANOMAGNESIUM COMPOUND PRODUCTION
FR 2,411,200. Schering. A:11.12.78: P:(-): C:12.12.77 (DE) as 55,300

RMgX and MgR_2 are produced from RX and crushed and ground Mg held under an inert gas. R is butyl, octyl, phenyl, hexyl, etc. The reaction is catalysed by a Group II and/or III organic compound, e.g. Zn ethyl or butyl Zn ethoxy, B triethyl or dibutyl Al hydride.

69. EFFECT OF LIGHT ON GRIGNARD REAGENT PRODUCTION
B. Gandha, J. K. Sugden. Synthetic Comm., September 1979, 9, 845-49

The yield of Grignard reagents from Mg and halides is affected by light and the yield is markedly improved for fluorenyl, phenyl and thienyl Grignards.

70. GROUP IA AND IIA METAL BENZENE AND POLYETHER SULPHONATES
FR 2,412,609. Unilever. A:21.12.78: P:(-): C:22.12.77 (GB) as 53,475
Clear liquid detergent compositions contain as active ingredients (a) a Mg alkylbenzene sulphonate (derived from a 10-13C linear alkylbenzene of mol wt 220-250 and containing at least 3.5% dialkyltetralin and (b) a Group IA metal, ammonium or amine alkyl polyether sulphate and/or a noionic surfactant.

71. MAGNESIUM NITRONAPHTHALENE DISULPHONATE
FR 2,413,367. Ciba-Geigy. A:28.12.78: P:(-): C:30.12.77 (CH) as 16,299
The crystallisation of Mg 3-nitronaphthalene-1,5-disulphonate is reported.

72. ALUMINIUM TRIALKYL-ETHYL PHENYL ETHER COMPLEXES
L. V. Gaponik et al. Khimiya i Khimicheskaya Tekhnologiya, 1979, 22, (10), 1194-96
The preparation and some properties of complexes AlR_3·PhOEt are reported, where R is hexyl, heptyl or nonyl.

73. ALUMINIUM ETHYL AND ZIRCONIUM TETRABUTOXY CATALYST
U. M. Dzhemilev et al. Izvestiya AN SSSR, 1979, (11), 2626-27
The conversion of hexene to 3-methyleneheptane by reaction with Et_2AlCl is catalysed by $Zr(OBu)_4$.

74. PALLADIUM/ALUMINIUM COMPLEXES ADDITION-CATALYST SYSTEM
U. M. Dzhenilev et al. Izvestiya AN SSSR, 1979, (11), 2652
The addition of butadiene or isoprene to pyrrole is catalysed by a system containing $AlEt_3$, $Pd(acac)_2$ and PPh_3.

75. ALUMINIUM TRIALKYLS
G. A. Tolstikov et al. Izvestiya AN SSSR, 1979, (11), 2653
The kinetics of chemiluminescence development on oxidation of AlR_3 with oxygen was investigated.

76. ALUMINIUM TRIPHENOXY AS ALKYLATION CATALYST
I. M. Zerzeva et al. Doklady AN Ukrainskoi SSR, 1979, (11), 915-20
The kinetics of phenol alkylation with decene in the presence of $Al(PhO)_3$ was investigated.

77. ALUMINIUM-CONTAINING AMINE SALTS
A. K. Sengupta et al. Indian J. Chemistry, January 1979, 17A, 107-08
The preparation and some properties of AlF_{4-6} salts with ethylenediamine, benzidine, pyridine, quinoline, bipyridine, morpholine, aminopyridine, guanidine or biguanide are reported.

78. ALUMINIUM CAPROLACTAMATE
O. Kriz et al. Collection Czechoslovak Chemical Communications, September 1979, 44, 2772-79
The preparation and some properties of $Al[NCO(CH_2)_5]_3$ are reported. A dimeric structure is proposed.

79. ALUMINIUM-SCHIFF BASE COMPLEXES
J. P. Tandon et al. Indian J. Chemistry, August 1979, 18A, 151-53
The preparation and some properties of 13 Al-Schiff base complexes are reported.

80. ALUMINIUM MIXED SCHIFF-BASE COMPLEXES
R. C. Mehrotra et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1405-07

Reaction of Al isopropoxy with monofunctional bidentate and tridentate Schiff bases yielded mixed Schiff base derivatives. If these complexes are monomeric the central Al atom will be penta co-ordinated and this is suggested by addition reaction with pyridine.

81. CHLOROALKENYLALANATES
G. Zweifel et al. J. American Chemical Society, 15.8.79, 101, 5101-02

The preparation and properties of the complexes $AlHzCH(R)=CCl$ (R is t-Bu, n-Bu or cyclohexyl) are described.

82. ALUMINIUM DIAZOBUTADIENE COMPLEXES
K. Vrieze et al. J. Organometallic Chemistry, 13.11.79, 181, 271-83

Co-ordination if diazobutadiene with $AlMe_3$ and subsequent intramolecular re-arrangement and insertion leads to $Me_2AlR-N-CHMe-C(R')=N-R$, where R' is H and Me and $Me_2AlR-N-CH_2-CMe=N-R$, R in both cases being xylyl and mesityl.

83. TITANIUM, LITHIUM AND ALUMINIUM COMPLEXES IN A HYDROGENATION CATALYST SYSTEM
E. Cesarotti et al. Angewandte Chemie in English, October 1979, 18, 779-80

The sterochemistry of 2-phenyl-1-butylene hydrogenation in the presence of L_2TiCl or $LCpTiCl_2$ as catalyst was examined, where L is menthyl- or neomenthyl-cyclopentadiene. The cocatalyst was "red aluminium" lithium aluminium dihydride di(methoxyethoxy).

84. ALUMINIUM ETHYL CHLORIDE
B. D. Snider et al. J. American Chemical Society, 29.8.79, 101, 5283-93

$AlEtCl_2$ catalyses the reactions of methyl propiolate with alkenes to give cyclobutenes.

85. ALUMINIUM TRIETHYL/COBALT CARBOXYLATE HYDROGENATION CATALYSTS
T. P. Pascault et al. Makromolekulare Chemie, 2.10.79, 180, 2309-21

Several low mol wt polybutadienes and a polyisoprene were hydrogenated using $AlEt_3$ with a Ni or Co carboxylate as catalyst.

86. ALUMINIUM TRIMETHYL ADDUCTS WITH ETHYLENE AND ACETYLENE
D. C. McCain et al. J. Molecular Catalysis, November 1979, 6, 367-74

INDO calculations show that Me_3Al forms metastable pi complexes having low dissociation energies with ethylene and acetylene.

87. ALUMINIUM-ISOPROPOXY-HYDROXYESTER COMPLEXES
R. N. Kapoor et al. Synthesis & Reactivity in Inorganic & Metal-Organic Chemistry, 1979, 9, (5), 419-33

The preparation, isolation and characterisation of complexes $(iPrO)_{3-n}AlL_n$ are reported, where n is 1-3 and L is an ethyl ester of 1-hydroxy-cyclohexyl acetic, 2-hydroxy-2-aryl propionic or 2-hydroxy-2-aryl butyric acid.

88. ALUMINIUM ALKOXY PEROXY COMPLEXES
I. V. Spirina et al. Zh. Obshchei Khimii, November 1979, 49, 2509-13

The preparation and some properties of complexes $(tBuO)_2AlOOtBu$ and $[(MeO)_2AlOOMe]_2$ are reported.

89. ALUMINIUM ALCOHOLATE OR ACETATE CATALYST
US 4,173,588. BASF. A:3.11.77: P:6.11.79: C:20.11.76 (DE) as 52,863 and 2.7.77 as 29,975

2-Methyl-2-hepten-6-one is prepared by reacting an alkyl acetoacetate with 2-methyl-3-buten-2-ol in the presence of an Al complex such as Al trialkoxy, Al triacetoacetate, Al alkylacetoacetate or Al triaryloxy.

90. ALUMINIUM-SILOXANE COMPLEX AS ALKYLATION CATALYST
SU 670,326. Moskovskii Ordena Trudovogo Krasnogo Znameni Institut Neftekhimicheskoi i Neftegazovoi Promyshlennosti im. I. M. Gubkina. A:15.2.78 as 2,580,515: P:30.6.79

The alkylation of benzene with propylene is catalysed by a product of reaction of $AlCl_3$ with octamethyltetracyclosiloxane.

91. ALUMINIUM TRIBUTOXY-CONTAINING OXIDISING MIXTURE
SU 679,570. Nauchno-Issledovatel'skii Institut Khimii pri Gor'kovskom Gosudarstvennom Universitete im. N. I. Lobachevskogo. A:27.4.77 as 2,480,098: P:17.8.79

Aliphatic ketones are obtained by oxidising paraffins with a mixture of $Al(tBuO)_3$ and t-butyl hydroperoxide.

92. METAL COMPLEXES IN OLEFIN-ISOMERISATION CATALYSTS
SU 681,034. Otdelenie Ordena Lenina Instituta Khimicheskoi Fiziki AN SSSR. A:27.2.75 as 2,108,455: P:25.8.79

The hydroisomerisation of n-olefins in liquid organic media to iso-olefins is catalysed by a system containing (a) $AlEt_3$ and (b) $Ti(OBu)_4$, $Ni(acac)_2$, $Fe(acac)_3$ or a Co or Ni carboxylate.

93. ALUMINIUM ALKOXY OR ACYLOXY IN CERAMIC PRODUCTION
US 4,172,108. Sumitomo. A:14.12.77: P:23.10.79: C:20.12.76 (JP) as 153,922

Sialon is produced by reacting alumina and silica precursors (silanes and Al alkoxys or acyloxys, e.g. isopropoxy) and heating the product.

94. LANTHANIDE METAL ISOTHIOCYANATE ADIPAMIDE COMPLEXES
G. Vicentini et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1487-90

$Ln(NCS)_3.2L$ complexes, where Ln is La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu and L is tetramethyladipamide have been prepared and characterised.

95. LANTHANIDE METAL HEXAMETHYL PHOSPHORTRIAMIDE COMPLEXES
V. V. Skopenko et al. Ukrainskii Khimicheskii Zh., October 1979, 45, 920-23

The preparation and some spectral properties of the tricyanomethanide complexes $Ln[C(CN)_3]_3.4L$ are reported where L is hexamethyl phosphortriamide.

96. LANTHANIDE METAL ACETATE AND EDTA COMPLEXES
A. I. Moskvin et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3076-81

Some properties of Np, Pu and Am acetates and EDTA complexes were studied.

97. LANTHANIDE METAL AMINOACETATE COMPLEXES
N. A. Kostromina. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3016-22

Some properties of Ln complexes with iminodiacetate, nitrilotriacetate, EDTA, cyclohexanediamine tetraacetate or diethylenetriamine pentaacetate were investigated.

98. LANTHANIDE METAL o-METHOXYBENZOATES
G. N. Makushova et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 2986-89

The preparation and some properties of complexes $Ln(MeOC_6H_4COO)_3.4H_2O$ are reported, where Ln is Eu, Gd, Tb, Dy or Ho.

99. LANTHANIDE METAL ACETATES
M. Batkibekova et al. Zh. Neorganicheskoi Khimii, 1979, 24, (1), 2983-85

Enthalpies of solution in 0.1N hydrochloric acid were determined for complexes $Ln(OAc)_3$, where Ln is Ce, Ho, Er, Tm, Yb or Lu.

100. LANTHANIDE METAL-ACETATE-UREA COMPLEXES
Yu. G. Sakharova et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 2969-77
Thermal, spectral and chemical analyses of complexes $Ln(OAc)_3.3CO(NH_2)_2$ are presented, where Ln is La, Ce, Pr, Nd, Sm or Eu.

101. LANTHANIDE METAL CAPRATES
E. F. Gavrilova et al. Ukrainskii Khimicheskii Zh., 1979, 45, (11), 1106-10
The extraction behaviour of Ho, Lu, Gd, Er and Yb caprates was investigated.

102. LANTHANIDE METAL-DICYANDIAMIDE-HEXAMETHYLPHOSPHORTRIAMIDE
V. V. Skopenko et al. Ukrainskii Khimicheskii Zh., 1979, 45, (11), 1033-36
The preparation and some properties of complexes $Ln[N(CN_2)_2]_3.2$ or 3 HMPTA are reported, where Ln is La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu or Y.

103. LANTHANIDE METAL THENOATES
A. M. Bhandari et al. Transition Metal Chemistry, October 1979, 4, 325-28
The preparation, isolation and characterisation of complexes LnL_3, $LnL_2(OR)$ and $LnL(OR)_2$ are reported, where L is 2-thenoate, R is i-Pr or t-Bu and Ln is La, Pr, Nd, Sm, Tb, Gd or Dy.

104. LANTHANUM AND LUTETIUM HEDTA COMPLEXES
N. A. Kostromina et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1633-38
Nmr spectra of La and Lu complexes with hydroxyethylethylenediaminetetraacetic acid were measured.

105. PRASEODYMIUM, NEODYMIUM AND URANIUM COMPLEXES WITH SUBSTITUTED DITHIOPHOSPHINIC ACIDS
P. N. M. Das, Indian J. Chemistry, February 1979, 17A, 196-98
The preparation and some properties of Pr, Nd and UO_2 alkyl or alkylaryl dithiophosphinic acids are reported.

106. PRASEODYMIUM, NEODYMIUM AND SAMARIUM IODOACETATES
M. Singh et al. Indian J. Chemistry, February 1979, 17A, 198-99
The preparation and some properties of complexes $M(ICH_2CO_2)_3$ are reported, where M is Pr, Nd or Sm.

107. PRASEODYMIUM-PYRIDOXIME COMPLEX
V. T. Panyushkin et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1737
The preparation and some properties of Pr pyridoxime monohydrate are briefly reported.

108. PRASEODYMIUM-, NEODYMIUM- AND SAMARIUM-AMINOCARBOXYLIC ACID COMPLEXES
M. B. Hafez et al. Indian J. Chemistry, March 1979, 17A, 315
The preparation and some spectral properties of Pr, Nd and Sm complexes with triethylenetetraaminehexaacetic acid are reported.

109. PRASEODYMIUM TRIUREA ACETATE HYDRATE
G. V. Romanenko et al. Doklady AN SSSR, 1979, 248, (6), 1337-41
The crystal and molecular structure of $[Pr(OAc)_3.2(NH_2CONH_2)]NH_2CONH_2.H_2O$ was determined and refined.

110. NEODYMIUM-UROTROPINE COMPLEX
V. B. Rybakov et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1723-24
The crystal and molecular structure of $Nd(NCS)_2.NO_3$-Z(urotropine) octahydrate was determined and refined.

111. NEODYMIUM, HOLMIUM AND ERBIUM EDTA COMPLEXES
N. A. Nazarenko et al. Ukrainskii Khimicheskii Zh., October 1979, 45, 937-40
The preparation and some properties of Nd, Ho and Er periodate complexes with EDTA are reported.

112. EUROPIUM-UREA AND -CROWN ETHER COMPLEXES
S. Calogero et al. Gazzetta Chimica Italiana, 1979, 109, (1-2), 45-49
The preparation and some properties of complexes $EuL_m(NO_3)_3$ and $EuL'(NCS)_3$ are reported, where m is 3 or 8, L is dimethyl-, diethyl- or tetramethyl-urea, perhydropyrimidinone or imidazolidinone and L' is benzo(15)-crown-5 or dibenzo(18)crown-6.

113. EUROPIUM-FLUORINATED β-DIKETONE MIXED-LIGAND COMPLEXES
V. S. Khomenko et al. Vestsi AN BSSR, 1979, (5), 63-68
The preparation and some properties of complexes $EuL_3.H_2O$, EuL_3.bipy, EuL_3.phen, EuL'.bipy, EuL'.phen, EuL".bipy and EuL".phen are reported, where L is trifluoroacetylacetonate, L' is pivaloyltrifluoroacetonate and L" is ethyl trifluoroacetoacetate.

114. SCANDIUM TRIMETHYL PHOSPHATE COMPLEXES
S. F. Lincoln et al. J. Chemical Society, Dalton Trans., 1979, (10), 1473-76
A study of ligand exchange on the Sc hexakis(trimethyl phosphate) ion has been carried out.

115. YTTRIUM-SUBSTITUTED PHOSPHONATE COMPLEXES
O. B. Kuznetsova et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1639-44
The complexing of Y with nitrilotrimethylphosphonic acid was investigated.

116. YTTRIUM ACETATES
I. Zlateva et al. Izvestiya po Khimiya, 1979, 12, (2), 285-90
Equilibrium yttrium acetate-acetic acid-water systems at 15° and 25° contain $Y(OAc)_3$ and its monohydrate and tetrahydrate.

117. TERBIUM-AMINOACID COMPLEXES
S. V. Beltyukova et al. Doklady AN SSSR, 1979, 247, (4), 862-65
Luminescence spectra were measured for Tb complexes with 21 amino acids.

118. CERIUM CYCLIC PHOSPHATE COMPLEXES
H. Waki et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1457-60
Stability constants of complexes of tri-, tetra, hexa and octametaphosphate with tervalent Ce are evaluated by ion-exchange and spectraphotometric methods and difference in the results by the two methods is discussed.

119. URANIUM FORMYLPYRROLIDINE
G. J. Honan et al. Australian J. Chemistry, August 1979, 32, 1851-55
The preparation and characterisation of $[UO_2L_5(ClO_4)_2]$ (L is N-formylpyrrolidine) is reported.

120. URANIUM-SCHIFF BASE COMPLEXES
J. P. Tandon et al. Indian J. Chemistry, February 1979, 17A, 188-89
The preparation and some properties of eight complexes of general formula UO_2Cl_2L are reported, where L is a dibasic tetradentate Schiff base.

121. URANIUM-OXIME COMPLEXES
N. S. Biradar et al. Revue Roumaine de Chimie, September-October 1979, 24, 1315-19
The preparation and some properties of UO_2 1:2 complexes with o,o'-dihydroxychalcone oximes are reported.

122. TRANSITION METAL URANYL ACETATES
F. J. Martin Gil et al. Revue Roumaine de Chimie, September-October 1979, 24, 1299-1306

The preparation and characterisation of complexes $M_{1 \text{ or } 2}[(UO_2)_m(OAc)_n]$ are reported, where M is Be, Mg, Ba, Sr, Mn, Ni, Zn, Co, Cu or Cd.

123. URANIUM SALICYLALDININE CHLOROFORM COMPLEXES
C. Bombieri et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1437-41

The chloroform adduct of N,N'-bis-salicylidene-1,5-diamino-3-oxapentane-dioxouranium, UO_2LCHCl_3 has been characterised.

124. URANIUM BENZOHYDROXAMIC ACID TETRAHYDROFURAN COMPLEXES
K. N. Raymond et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1431-36

UCl_4 has been oxidised via oxygen transfer reaction with N-phenylbenzo-hydroxanic acid anion (L) in tetrahydrofuran (L') to form $UO_2ClLL'_2$.

125. URANIUM METHYLCYCLOPENTADIENYL
J. M. Mannquez et al. J. American Chemical Society, 15.8.79, 101, 5075-78
The preparation and characterisation of $U(C_5Me_5)Cl$ is reported.

126. URANYL PHENANTHRAQUINONE COMPLEXES
J. W. M. de Boer et al. J. American Chemical Society, 29.8.79, 101, 5425-27
An esr study of UO_2 phenanthroquinone radicals is reported.

127. URANYL-PYRIDINE DICARBOXYLIC ACID-DIAMINE COMPLEXES
R. N. Kapoor et al. Synthesis & Reactivity in Inorganic & Metal-Organic Chemistry, 1979, 9, (5), 409-18

The preparation, isolation and characterisation of complexes UO_2LL' are reported, where L is pyridine-2,6-dicarboxylic acid and L' is ethylenediamine, bipyridyl, phenanthroline or phenylenediamine.

128. ACTINIDE METAL COMPLEXES
A. I. Moskvin. Koordinatsionnaya Khimiya, 1979, 5, (11), 1650-61
A review with 28 references.

129. TITANIUM CYCLOPENTADIENYL-ALUMINIUM-ALKYL CATALYST
T. N. Tebbe et al. J. American Chemical Society, 15.8.79, 101, 5074-75

The catalyst $TiCp_2CH_2/AlClMe_2$ catalyses the exchange of methylene groups between isobutylene and methylenecyclohexane.

130. TITANIUM CYCLOPENTADIENYL ACYL COMPLEXES
E. J. M. de Boer et al. J. Organometallic Chemistry, 13.11.79, 181, 61-68

Cp_2TiR, where R is Cl, C_6F_5, Ph and $oMeC_6H_4$, reacts with CO give two types of products: terminally co-ordinated adducts $Cp_2Ti(R)(CO)$ and acyl insertion products, Cp_2TiCOR.

131. TITANOCENE DERIVATIVE
H. H. Brintzinger et al. Angewandte Chemie in English, October 1979, 18, 777-78

The preparation and some properties of the chiral complex 1,1'-tri-methylene-bis(t-butylcyclopentadiene)$TiCl_2$ are reported.

132. TITANIUM CITRATE

F. G. Banica et al. Revista de Chimie, August 1979, 30, 802-04

A procedure for the polarographic determination of citric acid in the presence of Ti citrate is presented.

133. TITANIUM DIALKYLTHIOCARBAMATES

S. L. Hawthorne et al. J. American Chemical Society, 29.8.79, 101, 5268-77

The complexes $[Ti(SOCNR_2)_3Cl]$ (R is Me, Et, t-Pr_{10}-i-Bu) have been prepared and characterised.

134. TITANIUM-ALUMINIUM BENZENE COMPLEXES

K. Mach et al. Transition Metal Chemistry, October 1979, 4, 312-15

The distribution of chlorine and bromine atoms in complexes $(C_6H_6)TiAl_2Cl_xBr_{8-x}$ was investigated.

135. ZIRCONIUM SCHIFF BASE CHELATES

R. D. Archer et al. Inorganic Chemistry, October 1979, 18, 2908-16

The monomeric Schiff base chelate bis(N,N'-disalicylidene-1,2-phenylene diamine)Zr has been synthesised by condensation between tetrakis(salicyl-aldehydato)Zr and o-phenylenediamine and has been characterised as a model for analogous polymers.

136. CYCLOPENTADIENYL ZIRCONIUM DINITROGENS

M. F. Lappert et al. J. Organometallic Chemistry, 13.11.79, 181, 25-36

Sodium amalgam reduction of dicyclopentadienyl Zr chloride hydride or methyl under nitrogen replaces chloride by a nitrogen molecule. The Cp group may be substituted by trimethylsilylmethyl. When methyl is replaced by a bulkier group (isopropyl, t-butyl or trimethyl silyl) this does not occur.

137. ZIRCONIUM SALICYLATE

N. S. Smirnova et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3070-75

The extraction behaviour of Zr salicylate has been represented by mathematical modelling.

138. ZIRCONIUM COMPLEXES WITH DIANTIPYRYLPROPYLMETHANE

M. I. Shtokalo et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 2996-3003

Stability constants were determined for complexes ZrL and ZrL_2 where L is diantipyrylpropylmethane.

139. CYCLOPENTADIENYL ZIRCONIUM-ALUMINIUM METHYL CATALYST

E. Negishi et al. Synthesis, July 1979, 501-2

The reaction product of Cp_2ZrCl_2 and $AlMe_3$ catalyses the addition of iodine to phenyl acetylene and phenyl propynyl sulphide.

140. ZIRCONIUM MALATE

O. M. Gnatyshin et al. Ukrainskii Khimicheskii Zh., 1979, 45, (11), 1124-28

The complexing of Zr with maleic acid was investigated.

141. ZIRCONIUM AND HAFNIUM SILYLAMIDES

R. A. Andersen. Inorganic Chemistry, October 1979, 18, 2928-32

Dimethyl and diethyl Zr and Hf bis(trimethylsilyl)amides are available from the dichloro-metal amides and take up carbon dioxide to form carboxylate complexes. Butyl isocyanide forms 2:1 complexes with the amides.

142. HAFNIUM-SUBSTITUTED CYCLOPENTADIENYL COMPLEXES

N. I. Bogatyr' et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1620-24

The kinetics and mechanism of formation of complexes $Hf(OH)_{1-3}L$ and $HfLY_2$ were investigated, where L is 1,2,4-trihydroxy-3,4,5-trimethoxycarbonyl-cyclopentadiene.

143. HAFNIUM-DIMETHYLAMINE COMPLEXES
S. R. Wade et al. J. Less-Common Metals, November 1979, 68, 105-06
The preparation and some properties of complexes $HfX_4.2NMe_2$ are reported.

144. HAFNIUM CYCLOPENTADIENYL COMPLEX
G. A. Tolstikov et al. Izvestiya AN SSSR, 1979, (11), 2576-80
The preparation of Cp_2HfHCl and its use as a hydrometallating agent for olefins and acetylenes are reported.

145. HAFNIUM CYCLOPENTADIENYL CARBONYL
D. J. Sikora et al. J. American Chemical Society, 15.8.79, 101, 5079-81
The preparation and characterisation of $[HfCp_2(CO)_2]$ is reported.

146. GROUP IV-VI BUTYL ISONITRILE COMPLEXES
R. L. Richards et al. J. Organometallic Chemistry, 13.11.79, 181, 69-80
t-BuNC inserts into a metal-halogen bond of Ti, Hf, V and Nb halides to give an iminomethyl, -ClC=NtBu, substituent but this does not occur with Mo and W halides, Li quinololate, Na diethyl dithiocarbamate or the diphosphine, dppe, give displacement of the tBuNC complexing group.

147. VANADIUM MIXED-LIGAND COMPLEX
N. G. Mishcheryakova et al. Khimiya i Khimicheskaya Tekhnologiya, 1979, 22, (10), 1210-12
Factors affecting the determination of vanadium in steel as VL_2L' were investigated, where L is (2-ethylamino)ethylamidobenzoate (4-azo-5)8-hydroxyquinoline and L' is antipyrine.

148. VANADIUM-BIPYRIDYL-CARBOXYLIC ACID COMPLEXES
A. K. Jain et al. J. Indian Chemical Society, December 1978, 55, 1251-53
Potentiometric studies of complex VO(bipy)L are reported, where L is a dicarboxylic or hydroxycarboxylic acid ligand.

149. VANADIUM-CARBOXYLATE-AMINE COMPLEXES
V. P. R. Rao et al. Indian J. Chemistry, March 1979, 17A, 279-82
The formation of complexes during extraction of V with a system containing a lower aliphatic carboxylic acid and a base (pyridine, picoline or antipyrine) was investigated.

150. VANADIUM-DIANTIPYRYLMETHANE COMPLEX
N. A. Verdizade et al. Azerbaidzhanskii Khimicheskii Zh., 1979, (3), 86-88
Factors affecting the spectrophotometric determination of vanadium as $V(L)_3(SCN)_2$ were investigated, where L is diantipyrylmethane.

151. VANADIUM CYCLOPENTADIENYL DITHIOMETHOXY COMPLEXES
C. Floriani et al. J. Chemical Society, Dalton Trans., 1979, (10), 1612-17
$VCp_2(CS_2)$ and $[VCp_2(SCSMe)]I_3$ have been characterised.

152. VANADIUM AMINOSALICYLIC ACID COMPLEXES
B. Perlmutter-Hayman et al. Inorganic Chemistry, October 1979, 18, 2872-75
Kinetics of the V(III)-p-aminosalicylic acid system has been investigated by stopped flow techniques.

153. VANADYL CARBOXYLIC ACID HYDRAZIDES
V. B. Rana et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1498-1500
Complexes of formula VOL and $VOLX_2$ have been formed between the vanadyl ion and dipicolinic acid hydrazide and N,N'-dibenzylidine and N,N'-disalicylidine derivatives.

154. VANADIUM COMPLEXES WITH DIHYDROXY-NAPHTHALENE SULPHONIC ACID
L. H. J. Lajunen et al. Finnish Chemical Letters, 1979, (5), 140-42
Stability constants were determined for VO complexes with 2,3-dihydroxy-naphthalene-6-sulphonic acid in potassium chloride and sodium perchlorate solutions of various concentrations.

155. VANADYL COMPLEXES OF SOME SULPHUR- AND SELENIUM-CONTAINING LIGANDS
Z. R. Baratova et al. Doklady AN SSSR, 1979, 248, (2), 366-68
Some spectral properties were studied for about 26 complexes of VO with alkyl xanthates, dithioureas, dithiophosphates and diselenophosphates $(RO)_2PSe_2$.

156. NIOBIUM DICYCLOPENTADIENYL DITHIENYL
Yu. A. Ol'dekop et al. Vestsi AN BSSR, 1979, (5), 78-81
The preparation and some properties of $Cp_2Nb(C_4H_3S)_2$ are reported.

157. CYCLOPENTADIENYL AND INDENYL NIOBIUM DIOXIMATES
S. N. Nigam et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1493-95
Hitherto unknown L_3NbZ_2 complexes (L is cyclopentadienyl and indenyl) are formed from the Cl_3NbZ_2 and NaL. Z is dimethyl glyoximate or benzil dioximate.

158. NIOBIUM AND TANTALUM HALIDE LEWIS BASE COMPLEXES
A. E. Merbach et al. Inorganic Chemistry, October 1979, 18, 2758-62
The ligand exchange between Nb and Ta pentahalide complexes and free ligand has been studied for dimethyl ether, acetonitrile, propionitrile, dimethoxy phosphorus oxychloride and tris(dimethylamino)thiophosphite ligands.

159. TANTALUM DIENES
M. R. Churchill et al. J. American Chemical Society, 10.10.79, 101, 6462-63
The crystal and molecular structures of the complexes $[TaC_5Me_5(L)Cl_2]$ (L is ethylene or 1,6-heptadiene) have been determined.

160. TANTALUM ALKYNES
F. A. Cotton et al. J. American Chemical Society, 15.8.79, 101, 5094-95
The complexes $Ta_2(MeCN)_4(CR{\equiv}CR)$ (R is Me or Et) have been prepared and characterised.

161. TANTALUM PENTYL CATALYST
J. D. Fellmann et al. J. American Chemical Society, 15.8.79, 101, 5099-5101
The complex $Ta(CH_2CMe_3)_3(CHCMe_3)$ together with PMe_3 and ethylene forms a catalyst system for the selective dimerisation of ethylene to 1-butene.

162. TANTALUM CYCLOPENTANES
S. J. Mchain et al. J. American Chemical Society, 29.8.79, 101, 5451-53
The complexes $\{\overline{TaCH_2CHRCHRCH_2}(C_5Me_3)Cl_2\}$ (R is, e.g., H or Me) have been prepared and characterised.

163. TANTALUM CYCLOPENTADIENYL COMPLEX
C. D. Wood et al. J. American Chemical Society, 29.8.79, 101, 5421-22
$TaMe_4C_5Me_5$ reacts with CO to give $TaMe_2C_5Me_5COMe_2$ which has been characterised.

164. TANTALUM PENTAFLUORIDE COMPLEXES WITH SOME ARSENIC-CONTAINING LIGANDS
E. G. Il'in et al. Doklady AN SSSR, 1979, 247, (1), 113-15
The preparation and some properties of complexes TaF_5L are reported, where L is Ph_3AsO, Ph_3AsS or Bu_3AsO.

165. TANTALUM FLUORIDE-ACETOXIME COMPLEXES
S. G. Sakharov et al. Doklady AN SSSR, 247, (5), 1197-1201
The nmr spectra of TaF_n complexes with acetoxime were studied.

166. TRANSITION METAL HALOBENZENES
A. C. Knipe et al. Chemical Comm., 1979, (19), 842-43
The activation of Cr, Mo, Mn and Fe complexes of halobenzenes towards replacement of halide by methoxy has been investigated.

167. GROUP VI METAL-AMINE AND -AZOLE COMPLEXES
A. Oskam et al. Thermochimica Acta, October 1979, 33, 217-23 and November 1979, 34, 69-83
Vapour pressures and enthalpies of sublimation were determined for complexes $M(CO)_5L$, where L is pyridine, piperidine, pyrazole or thiazole and M is Cr, Mo or W.

168. CHROMIUM PHENANTHROLINE
N. Ise et al. J. American Chemical Society, 12.9.79, 101, 5834-37
The photoracemisation of Cr tris(1,10-phenanthroline) in solution is reported.

169. CHROMIUM-AMINOACID-AMMINE COMPLEXES
R. Bembi et al. Indian J. Chemistry, February 1979, 17A, 204-06
The preparation and some properties of complexes $Cr(NH_3)_5L\ (ClO_4)_3$ are reported, where L is glycine, alanine, valine, leucine, isoleucine, asparagine or arginine.

170. CHROMIUM-PYRAZOLE AND -IMIDAZOLE COMPLEXES
F. Mani et al. J. Chemical Research, November 1979, 4201-30
The preparation and some properties of 13 Cr complexes with lower alkyl-pyrazoles or -imidazoles are reported.

171. CHROMIUM-CONTAINING PYRIDINIUM COMPLEX
K. K. Banerji. Indian J. Chemistry, March 1979, 17A, 300-02
The kinetics and mechanism of oxidation of glycollic, lactic and α-hydroxybutyric acids by pyridinium chlorochromate were investigated.

172. CHROMIUM-PHENANTHROLINE COMPLEXES
G. S. De et al. Indian J. Chemistry, March 1979, 17A, 254-56
The kinetics of substitution of aquo ligands from hexaaquo-Cr by phenanthroline in aqueous ethanol was studied spectrophotometrically.

173. CHROMIUM CARBOXYLATES
R. Kapoor et al. Z. Naturforschung, October 1979, 34B, 1369-72
The preparation and some properties of $CrCl(OAc)_2$ and $\{Cr_3O(RCO_2)_6\}Cl$ are reported, where R is Me, Et, Pr, CH_2Cl, $CHCl_2$ or CCl_3.

174. CHROMIUM PHOSPHONIC ACID, ACETYLACETONATE AND DITHIZONE COMPLEXES
P. R. Brontchev et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1451-56
Mechanism studies of the reaction of dichromate with dithizone, 2-oxo-propanephosphonic acid, acac, trifluoro-acac and benzylacetone in organic solvents indicate that the solvents first reduce Cr(VI) to Cr(V), the ions then being stabilised as complexes by the ligands.

175. ALKYLATION OF ESTER-CHROMIUM CARBONYL COMPLEXES
G. Simonneaux, G. Jaouen. Tetrahedron, 1979, 35, (19), 2249-54
Cr tricarbonyl complexes of acetophenone, methyl phenylacetate and toluene (and their derivatives) may easily be alkylated using NaH in DMF or K butoxy in DMSO.

176. PHOSPHONIOMETHYL CHROMATE COMPLEXES
L. Knoll. J. Organometallic Chemistry, 27.11.79, 182, 77-87
Tetraethyl ammonium bromopentacarbonyl chromate reacts with methyl and benzylidene phosphoranes to yield yellow stable complexes of the type $(CO)_5Cr^{\ominus}-CHR-P^{\oplus}R'_3$ where R' is Ph or Me and R is H or Me.

177. CHROMIUM TERPYRIDINE ION
W. A. Wickramasinghech. Chemical Comm., 1979, (18), 798-800
The crystal and molecular structure of the $(CrL_2)^{3+}$ ion (L is 2, 2', 2"-terpyridine) has been determined.

178. CHROMIUM TRICARBONYL SULPHONIUM YLIDE COMPLEXES
A. Ceccon et al. J. Organometallic Chemistry, 20.11.79, 181, C4-C6
Oxiranes and olefins are obtained by reaction between free and complexed phenylmethylsulphonium methylides with $Cr(CO)_3$ and benzophenone, benzaldehyde, or cyclohexanone.

179. CHROMIUM DIETHYLAMINO (TRIPHENYLSTANNYL) CARBENE COMPLEX
E. O. Fischer et al. J. Organometallic Chemistry, 13.11.79, 181, 37-45
Pentacarbonyl diethylamino(triphenylstannyl)carbene Cr(0) has been prepared by reaction of the cationic carbyne complex $\left[(CO)_5Cr{\equiv}CNEt_2\right]BF_4$ with Ph_3SnK.

180. CHROMIUM CARBONYL HETEROCYCLIC AMINES
G. R. Dobson et al. J. American Chemical Society, 29.8.79, 101, 5433-34
The complexes $CrL(CO)_3L'$ (L is o-phenanthroline or 2,2'-bipyridyl, L' is PPh_3 or PPh_3O) have been prepared and characterised.

181. CHROMIUM-PYRIDINE OXIDATION
H. C. Brown et al. Synthesis, September 1979, 702-3 and 703-4
Oxidation of aldehydes to acids and trialkyl borates to aldehydes is catalysed by pyridinium chlorochromate.

182. CHROMIUM DIAMINE COMPLEXES
S. Nitra et al. Thermochimica Acta, November 1979, 34, 189-95
The thermal isomerisation of complexes $(CrBr_2L_2)Br.H_2O$ was investigated, where L is ethylenediamine or trimethylenediamine.

183. CHROMIUM TRIS(ETHYLENEDIAMINE) COMPLEXES
A. W. Adamson et al. J. Physical Chemistry, 9.8.79, 83, 2097-2103
The photochemistry of $Cr(en)_3$ complexes was investigated.

184. MOLYBDENUM AND CHROMIUM METHYLENEPHOSPHONIUM SALTS
T. A. Cotton et al. J. American Chemical Society, 29.8.79, 101, 5252-55
The low temperature electronic spectra of M_2 tetrakis(dimethyldimethylene-phosphonium) salts (M is Mo or Cr) are reported.

185. CHROMIUM AND MOLYBDENUM DIMETHYLPHOSPHONIUM DIMETHYLIDO COMPLEXES
F. A. Cotton et al. Inorganic Chemistry, October 1979, 18, 2713-17
$Me_2P(CH_2)_{2\ 4}Me_2$ where Me is Cr and Mo, have been characterised.

186. MOLYBDENUM HYDRIDO CYCLOPENTADIENYL
W. C. Mills et al. J. American Chemical Society, 12.9.79, 101, 5830-32
The photoreaction of $[MoH(CO)_3Cp]$ has been studied.

187. MOLYBDENUM AND TUNGSTEN HYDRIDE-TERTIARY PHOSPHINE COMPLEXES IN NITROGEN FIXATION
A. P. Pivovarov et al. Izvestiya AN SSSR, 1979, (11), 2590-91
The effectiveness of complexes MH_4L_4 as nitrogen-fixing agents was investigated, where L is $PHPh_2$, $PMePh_2$, $PEtPh_2$, $PBuPh_2$, PEt_2Ph or $P(OiPr)_3$.

188. MOLYBDENUM DIPHENYLPHOSPHINOETHANOTHIOLATE
J. R. Dilworth et al. J. Chemical Society, Dalton Trans., 1979, (10), 1595-99
$[MoO(SCH_2CH_2PPh_2)_2]$ has been prepared by reacting MoO_2(pentane-2,4-dionate) with excess (diphenyl phosphino)ethanethiol.

189. MOLYBDENUM PHOSPHINE COMPLEXES
J. R. Dilworth et al. J. Chemical Society, Dalton Trans., (10), 1979, 1603-06
Complexes $MoCl(O)(L)_2$ $[MoCl_3O(RCON_2Ph)]$, where R is Ph, ClPh and Me and L is a ditertiary phosphine have been prepared from hydrazines and molybdenum oxo complexes containing the appropriate ditertiary phosphines.

190. MOLYBDENUM OXINATE AND DITHIOCARBAMATE COMPLEXES
J. R. Dilworth et al. J. Chemical Society, Dalton Trans., 1979, (10), 1600-02
Oxo complexes, MoO_2L where L is oxinate or dimethyl, pentamethylene or diphenyl dithiocarbamate react with hydrazines to give hydrazido complexes $Mo(NNR_2)OL_2$-$Mo(NNMe_2)O(S_2CNMe_2)$ has been characterised.

191. MOLYBDENUM PIPERIDINE COMPLEXES
D. J. Darensbourg. Inorganic Chemistry, October 1979, 18, 2821-25
Kinetic and mechanistic studies of the reaction of cis-$Mo(CO)_4\{P(OMe)_3\}NHC_5H_{10}$ with CO giving the cis-Mo $P(OMe)_3$ NHC_5H_{10} complex have been carried out.

192. MOLYBDENUM PYRIDYL ACETAMIDO COMPLEXES
F. A. Cotton et al. Inorganic Chemistry, October 1979, 18, 2717-19
Reaction of MoOAc with the anion of N-(2-pyridyl)acetamide gives $Mo_2(C_5NH_4)NC(O)Me_4$, a complex having a shorter Mo-Mo quadruple bond than any previously known.

193. MOLYBDENUM CARBONYL-PHENOL CATALYST
G. J. Leigh et al. J. Organometallic Chemistry, 13.11.79, 181, 99-104
Tolyl phenyl acetylene readily undergoes metathesis in the presence of a Mo carbonyl complex of phenol (less readily) acetonitrile and phosphines.

194. MOLYBDENUM DIMETHYL (ARENE) DIMETHYLPHENYLPHOSPHINE COMPLEXES
J. L. Attwood et al. J. Chemical Society, Dalton Trans., 1979, (10), 1519-23
$MoMe_2$(arene)$(PPhMe_2)_2$ complexes, where arene is benzene and toluene, have been characterised.

195. MOLYBDENUM PEROXO-HETEROCYCLIC COMPOUND ADDUCTS
US 4,171,313. Allied Chemical. A:14.10.77 as 842,130: P:16.10.79
Catalysts for the oxidation of alicyclic ketones to lactones, ω-hydroxy acids and esters, are Mo or W peroxo complexes with azaheterocyclic aromatic compounds, e.g. $[WO_3L(H_2O)_2]$ (L is dipicolinite).

196. MOLYBDENUM [illegible]ATE ADDITIVE
US 4,169 041. Exxon. A 5.4.78 as 893 710: P:25 9.79
Metal compounds can be dispersed in the coked chargestock of fluid hydro coking processes to reduce the amount of carbon deposits. The additive can be a Group IVB, VB, VIB, VIIB or VIII carboxylate, phenoxy, heteropoly acid, etc., but Mo naphthenate is preferred.

197. MOLYBDENUM-PHENANTHROLINE-BROMOPYROCALLOL RED COMPLEX
M. M. Tananaiko et al. Zh. Ukrainskii Zh., October 1979, 45, 1005-08
Optimum conditions for the formation of $MoI_2L'_2$ were determined, where I is phenanthroline and L' is bromopyrogallol red.

198. MOLYBDENUM CYCLOPENTADIENYL HYDRIDE
W. D. Jones et al. J. American Chemical Society, 29.8.79, 101, 5447-49
The preparation and properties of the complexes $MoCp(CO)_3R$ (R is Me, Et or $PhCH_2$) is described.

199. MOLYBDENUM DITHIOLATE
M. R. Dubois et al. J. American Chemical Society, 29.8.79, 101, 5245-52
The complexes $(MoCpSC_nH_{2n}S)_2$ (n is 2 or 3) have been prepared and characterised.

200. MOLYBDENUM-CYCLOPENTADIENYL-ALKYL COMPLEXES
J. A. McCleverty et al. Transition Metal Chemistry, October 1979, 4, 273-85
The preparation and some properties of complexes $\{Mo(Cp)(C_3H_4R)(CO)(NO)\}X$ and $[Mo(Cp)(C_3H_5)(NCR')(NO)]X$ are reported, where R is H or Me and R' is Me or Ph.

201. MOLYBDENUM-THIOL BRIDGED-CYCLOHEPTATRIENYL COMPLEXES
K. Weidenhammer et al. Z. anorganische Chemie, August 1979, 455, 29-42
The crystal and molecular structures of $(CO)_3Mo(S\text{-}t\text{-}Bu)_3MoC_7H_7$ and $(CO)_3Mo(S\ Bu)_3MoC_7H_7$ were determined and refined.

202. MOLYBDENUM-CYCLOPENTADIENYL-THIOAMIDE COMPLEXES
H. Brunner et al. Z. Naturforschung, October 1979, 34B, 1418-23
The preparation and some properties of the optically active comp[illegible]es $Cp(CO)_2MoSC(R)NCH(Me)(tolyl)$ are reported, where R is Me or Ph.

203. LITHIUM-MOLYBDENUM ARYL COMPLEX
B. Sarry et al. Z. anorganische Chemie, September 1979, 456, 181-86
The preparation and some properties of $Mo(C_6H_4)_2(PhLi.Et_2O)_4$ are reported

204. MOLYBDENUM AND TUNGSTEN AMINE COMPLEXES
D. N. Pathak. Indian J. Chemistry, March 1979, 17A, 310-11
The preparation and some properties of complexes $[M(CO)_2(NO)L]_2$, formed by the reaction of $M(CO)_3(L)(py)$ with nitric oxide are reported, where L is phenanthroline or bipyridine and M is Mo or W.

205. MOLYBDENUM AND TUNGSTEN CARBYNE AND ISONITRILE PHOSPHINE COMPLEXES
R. L. Richards et al. J. Chemical Society, Dalton Trans., 1979, (10), 1585-90
Addition of acids HX to the complex $M(CNR)_2L_2$, where M is Mo and W, R is Me, tBu, Ph and tolyl and L is (diphenyl phosphino)ethane under controlled conditions gives the hydride and the hydrido-carbyne complexes.

206. MOLYBDENUM AND TUNGSTEN CYCLOPENTADIENYL PHOSPHITE COMPLEXES
J. C. T. R. Burckett-St.-Laurent et al. J. Organometallic Chemistry, 13.11.79, 181, 117-30
Mechanism of halogenation of the non-bridged metal-metal bonded derivatives $MCp(CO)_2L_2$, where M is Mo and W and L is CO and $P(OMe)_3$, has been investigated

207. MOLYBDENUM AND TUNGSTEN PHOSPHINOETHANE COMPLEXES
J. E. Bercaw et al. J. Organometallic Chemistry, 13.11.79, 181, 105-116
Kinetics of substitution of nitriles in trans-$\{M(N_2)_2L_2\}$ and cis$\{M(N_2)_2(PMe_2Ph)_4\}$, where M is Mo and W and L is bis(diphenylphosphino)ethane has been studied. One dinitrogen is replaced by a nitrile in the former complex and two nitrogens are replaced in the latter.

208. TUNGSTEN CARBONYL PHOSPHITE
D. J. Darensbourg et al. J. American Chemical Society, 10.10.79, 101, 6447-49
An nmr study of $W(CO)_5P(OMe)_3$ is reported.

209. METHYL TUNGSTEN BIS-(CYCLOPENTADIENYL) HYDRIDE
M. L. H. Green et al. J. Chemical Society, Dalton Trans., 1979, (10), 1557-62
The methyl hydride MeWCp(H) has been prepared by treating WCp_2MeX with $Na\{AlH_2(methoxyethoxy)_2\}$.

210. MANGANESE, RHENIUM AND IRON PHOSPHOLYL AND ARSOLYL COMPLEXES
E. W. Abel et al. J. Chemical Society, Dalton Trans., 1979, (10), 1552-56
Tetraphenyl-phospholyl and tetraphenyl-arsolyl complexes $M(CO)_5(EC_4Ph_4)$, where E is P and As and M is Mn, Re and Fe lose CO on heating to yield the corresponding phospholyl and arsolyl complexes.

211. MANGANESE AND IRON ALKYL SILANES
D. L. Johnson et al. J. American Chemical Society, 10.10.79, 101, 6433-35
$[Mn(CO)_5SiMe_3]$, $Fe(CO)_4(SiMe_3)_2$ and $[Fe(CO)_4SiMe_2CH_2CH_2SiMe_2]$ react with benzaldehyde to give α-silyloxybenzyl and benzylidene-derived ligands plus metal carbonyls.

212. MANGANESE METHYLENE
A. E. Stevens et al. J. American Chemical Society, 10.10.79, 101, 6449-50
The preparation and properties of Mn methylene are described.

213. MANGANESE ALKYL HALIDES
G. Friour et al. Bull. Societe Chimique France, September/October 1979, II, 515-17
The preparation and properties of the complexes MnRX, MnR_2, $MMnR_3$ (R is alkyl, Ph, vinyl or allyl, M is MgCl or Li) is described.

214. MANGANESE-NUCLEOTIDE COMPLEX
M. K. Green et al. Canadian J. Chemistry, 15.9.79, 57, 2434-43
An nmr investigation of the Mn complex with nicotinamide adenine dinucleotide phosphate is reported.

215. DIMETHYL PHENYLPHOSPHONITE MANGANESE TETRAFLUOROBORATE
M. Laing et al. Inorganic Chemistry, October 1979, 18, 2666-70
$\{Mn(NO)_2[P(OMe)_2Ph]_3\}BF_4$ has been characterised.

216. MANGANESE HEXADIYNE METHYLCYCLOPENTADIENYL
R. C. Petterson et al. J. Chemical Society, Dalton Trans., 1979, (10), 1630-33
$[Mn(MeCp)(CO)_2]_2[MeC{\equiv}CC{\equiv}CMe]$ prepared by reaction of hexa-2,4-diyne and $Mn(MeCp)(CO)_3$ has been characterised.

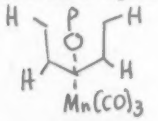
217. MANGANESE CAPRIC ACID COMPLEXES
A. Bartecki et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1461-64
Extraction equilibria in the $MnCl_2$-ammonium chloride-capric acid system has been studied.

218. ALKYL MANGANOUS CHLORIDES IN KETONE SYNTHESIS
G. Cahiez et al. Synthetic Comm., July 1979, 9, 639-45
RMnX reacts with carboxylic anhydrides to give ketones almost quantitatively, R is heptyl, phenyl, butylethynyl, allyl, etc.

219. MANGANESE QUINONE AND DIKETONE COMPLEXES
A. Alberti et al. J. Organometallic Chemistry, 20.11.79, 181, 355-63
Some o-quinones and 1,2-diketones react with $Mn(CO)_5$ radicals generated in situ to give persistant paramagnetic adducts and spectral studies indicate chelation of a $Mn(CO)_4$ moiety by two oxygens of the dicarbonyl substrate. One or more CO groups can be replaced by compounds containing N, P, Sb and As as bonding sites. The system is of interest in biological studies on transition metal bonding to nucleic acids.

220. CYMANTRENE COMPLEXES
Sh. G. Kasumov et al. Azerbaidzhanskii Khimicheskii Zh., 1979, (3), 33-41
Spectral properties of complexes $C_5H_4YMn(CO)(L)(L')$ were studied, where L is CO and L' is a tertiary phosphine or LL' is a bis(tertiary phosphine).

221. PHOSPHACYMANTRENE
C. L. Khetrapal et al. J. Organometallic Chemistry, 20.11.79, 181, 349-53
The NMR spectra of pi-phospholyl $Mn(CO)_3$ I



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orientated in the nematic crystal phases of liquid crystals has been investigated.

222. MANGANESE-CONTAINING QUATERNARY AMMONIUM SALT
H. H. Jager et al. Angewandte Chemie in English, October 1979, 18, 786-87 and
H. J. Schafer et al. Angewandte Chemie in English, October 1979, 18, 787
Warnings are given of the liability of benzyl(triethyl)ammonium permanganate to violent explosive decomposition.

223. MANGANESE DIBENZYL
K. Jacob et al. Z. anorganische Chemie, August 1979, 455, 3-12
The preparation and some properties of $(PhCH_2)_2Mn$ are reported.

224. RHENIUM-AMINOCARBOXYLIC ACID COMPLEXES
A. A. Ioganson et al. Izvestiya AN SSSR, 1979, (11), 2580-84
The preparation and some properties of complexes $BrRe(CO)_3L_2$ are reported, where L is glycine, valine, leucine, phenyl-alanine, thienyl-alanine or indolylacetic acid.

225. RHENIUM AND TUNGSTEN PYRAZOLYL PHOSPHINE COMPLEXES
F. W. B. Einstein et al. Canadian J. Chemistry, 1.9.79, 57, 2285-91
The crystal and molecular structure of bromotricarbonyl{phenylbis(3,5-dimethyl-pyrazolyl)phosphine}Re and tricarbonyl{phenylbis(3,5-dimethyl-pyrazolyl)-phosphine}W were determined and refined.

226. RHENIUM THIOCYANATE BUTYLAMINE COMPLEXES
F. A. Cotton et al. Inorganic Chemistry, October 1979, 18, 2719-23
$(Bu_4N)_3Re_2(NCS)_{10}$ has been recharacterised and is not $(Bu_4N)_3Re_2(NCS)_8(CO)_2$ as previously reported.

227. RHENIUM DIPHENYL DISELENIDE COMPLEXES
I. Bernal et al. J. Chemical Society, Dalton Trans., 1979, (10), 1492-96
$Re_2Br_2(CO)_6(Se_2Ph_2)$ prepared by replacing THF in the tetrahydrofuran (L) adduct with diphenyl diselenide.

228. RHENIUM ANNULENATE

M. Tsutsui et al. J. Coordination Chemistry, 1979, 8, (4), 245-48

The complex $[Re(CO)_3]_2\{$dibenzo-[b,i][1,4,8,11]-tetraazo[14]annulenate$\}$ has been prepared and is claimed as the first dinuclear metallotetraazaannulene complex.

229. RHENIUM CARBENES

W-K. Wong et al. J. American Chemical Society, 29.8.79, 101, 5440-42

The complexes $[ReCp(PPh_3)NO(CHR)]$ (R is H, OMe or OH) have been prepared and characterised.

230. RHENIUM-DIMETHYLTHIOPHOSPHINITE COMPLEX

E. Lindner et al. Z. anorganische Chemie, September 1979, 456, 163-68

The preparation and some properties of ammine (tetracarbonyl) (dimethylthiophosphinito) rhenium $(CO)_4NH_3ReP(Me)_2S$ are reported. Its crystal and molecular structure was determined and refined.

231. IRON PYRIDYL COMPLEX IN OXYGEN GENERATION

K. Kalyansumdarum et al. Helvetica Chimica Acta, 31.10.79, 62, 2432-41

Oxygen is generated when an aqueous solution of Fe tris(bipyridyl) is brought into contact with RuO_2.

232. IRON-METHYL AND METHYLENE COMPLEXES

N. S. Nametkin et al. Izvestiya AN SSSR, 1979, (11), 2649-50

Dithiodiiron hexacarbonyl reacts with diazomethane to give a mixture of $H_2CS_2Fe_2(CO)_6$, $(H_2C)_2S_2Fe_2(CO)i$, $(H_2C)_3S_2Fe_2(CO)_6$ and $Me_2S_2Fe_2(CO)_6$.

233. IRON HYDROXAMATES

B. Monzyk et al. J. American Chemical Society, 10.10.79, 101, 6203-13

A thermodynamic and kinetic study of Fe(III) complexes of RC(O)N(OH)R" (R is Me or Ph, R' is H, Me or Ph) is reported.

234. IRON PICOLYLAMINE

B. A. Katz et al. J. American Chemical Society, 10.10.79, 101, 6214-21

The crystal structure of the spin isomers of Fe(II) tris(2-picolylamine) dichloride has been determined.

235. IRON PORPHYRIN-CARBENE COMPLEXES

D. Mansuy et al. J. American Chemical Society, 10.10.79, 101, 6437-39

The complexes (FeLL'Cl) (L is tetraphenylporphyrin, L' is RC≡CR, R is $p\text{-}ClC_6H_4$) have been prepared and characterised.

236. CYCLOPENTADIENYL IRON ALKYL SULPHIDE

S. Brandt et al. J. American Chemical Society, 10.10.79, 101, 6473-75

The complex $FeCp(CO)_2CH_2SMe_2.BF_4$ is used as a transfer reagent in the cyclopropanation of olefins.

237. IRON- AND CHROMIUM-PYRIDINE-ALDOXIME COMPLEXES

M. Mohan et al. Gazzetta Chimica Italiana, 1979, 109, (1-2), 65-72

The preparation, isolation and characterisation of several Fe and Cr halide complexes with 6-methylpyridine-2-aldoxime are reported.

238. IRON-MELAMINE COMPLEXES

G. B. Seifer et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1665-69

Thermal decomposition reactions of melamine ferricyanide $[C_3N_3(NH_2)_3]_3H_3[Fe(CN)_6].2H_2O$ were investigated.

239. IRON-ALLYL COMPLEXES
J. L. A. Roustan et al. Canadian J. Chemistry, 15.10.79, 57, 2790-91
Some reactions of complexes $LFe(CO)_2NO$ were investigated, where L is an allyl radical.

240. FERRO-LACTONES AND -LACTAMS
R. Aumann et al. Chemische Berichte, November 1979, 112, 3644-71
The carbonylation of vinyloxiranes to unsaturated lactones in the presence of Fe carbonyl complexes proceeds via the ferrolactone, which is readily converted to a ferralactam by reaction with a primary amine. Several of these complexes were isolated and characterised.

241. IRON HYDRAZONE COMPLEXES
R. P. Singh et al. Indian J. Chemistry, March 1979, 17A, 318-20
Two complexes formed by 2,2'-bipyridyl ketone 2-pyrimidyl hydrazone with ferrous iron at pH 1.5-2.5 and 5.0-13.0 respectively can be used for the spectrophotometric determination of Fe, e.g. in steel.

242. IRON CYCLOPENTADIENYL DICARBONYLS
M. Bonard. Inorganic Chemistry, October 1979, 18, 2782-85
Molecular orbital calculations on trans $[CpFe(CO)_2]_2$ show th[illegible]here is apparently no set direct bonding between carbonyl bridged Fe atoms.

243. IRON OXALATE, SQUARATE AND HYDROXYBENZOQUINONE COMPLEXES
D. B. Brown et al. Inorganic Chemistry, October 1979, 18, 2738-49
Synthesis, magnetic susceptibility and structure are reported for Fe co-ordination polymers containing oxalate, squarate and dihydroxybenzoquinone dianions.

244. IRON PICOLYLAMINE COMPLEXES
E Sinn et al. Inorganic Chemistry, October 1979, 18, 2692-95
Magnetic properties of FeL_3Br_2R and $(FeL_3)Cl_2$-ethanol, where R is methanol or ethanol and the crystal structure of the latter, have been obtained.

245. IRON SOLUTION EXTRACTION WITH TRIBUTYLACETOHYDROXAMIC ACID
P. R. Danesi et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1465-74
Extraction kinetics of Fe(III) from aqueous nitrate solutions to toluene solutions of tri-n-butyl-acetohydroxamic acid has been investigated.

246. CARBOXYLATE BRIDGING OF IRON PHOSPHINES
C. N. Mott, A. J. Carty. Inorganic Chemistry, October 1979, 18, 2926-28
Iron carbonyl phosphines react with acids to give carboxylate-bridged binuclear Fe carbonyl complexes, especially the acetate and propionate derivatives.

247. THIOUREA-CYANOFERRATE COMPLEXING
D. H. Macartney, A. McAuley. Inorganic Chemistry, October 1979, 18, 2891-95
The pH-related forms of $Fe(CN)_5$ have been studied for their complexing of thiourea, allyl thiourea and dimethyl thiourea.

248. IRON TROPYLIUM COMPLEXES
C. P Lewis et al. J. American Chemical Society, 15.8.79, 101, 4896-4906
The preparation and properties of $[FeL(CO)_3]^+$ ions (L is tropylium substituted by Me, i-Pr, cyclopropyl or phenyl) are described.

249. IRON (DIMETHYLAMINO) PHOSPHINE

A. H. Cowley et al. J. American Chemical Society, 15.8.79, 101, 5090-92

The crystal structure of $FeL_2(CO)_3$ (L is $(Me_2N)_3P$) has been determined.

250. IRON TRICYCLONONANE COMPLEXES

F. W. Grevels et al. J. Chemical Society, Dalton Trans., 1979, (10), 1451-59

Dimethyl cyclobut-3-ene-cis dicarboxylate reacts with Fe carbonyls to form ferratricyclononane complexes. Insertion of CO leads to displacement of the metal from the 5-membered ferracycle, with formation of corresponding ketones. The metallacycles are intermediates in transition metal-catalysed reactions of olefins.

251. IRON DIALKYL DITHIOCARBAMATES

B. W. Fitzsimmons et al. J. Chemical Society, Dalton Trans., 1979, (10), 1548-51

A series of bis(dialkyldithiocarbamato) halogeno (nitrosyl) Fe complexes have been prepared and characterised.

252. IRON ARENE CYCLOPENTADIENYL COMPLEXES

R. G. Sutherland et al. J. Organometallic Chemistry, 20.11.79, 181, 411-24

A variety of arene-CpFe cations in which the arene ligand has an alpha-carbon substituent containing one or more hydrogens, e.g. MePh, EtPh, tetralin, xanthene, can be diprotonated with base to give the corresponding neutral zwitterionic species.

253. IRON PHOSPHINE ACETONITRILE COMPLEXES

G. Zotti et al. J. Organometallic Chemistry, 20.12.79, 181, 375-86

Trans-$[FeL_2(MeCN)_2(ClO_4)]$, where L is (diphenylphosphino)ethane, has been prepared and characterised. Acetonitrile substitution by CO leads to the formation of carbonylated species, $Fe(CO)L_2$.

254. IRON-DIMETHYLGLYOXIME-IMIDAZOLE COMPLEX

Yu. I. Bratushko et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3125-28

The oxidation-reduction properties of $Fe(L_2)(L'_2)$ were investigated, where L is dimethylglyoxime and L' is imidazole.

255. IRON ALKYLPHOSPHONATES

D. A. Fedoseev et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3023-33

The preparation and some properties of Fe complexes with isooctyl-methyl-, -phenyl-, -hydroxymethylenebenzyl- or -ethyl hydroxymethylene-phosphonic acid are reported.

256. IRON PORPHYRINS

D. Lavalette et al. J. American Chemical Society, 29.8.79, 101, 5395-5401

Fe(II) prophyrins with nitrogenous bases as axial ligands (hemochromes) can be photodissociated by a laser pulse.

257. IRON-BIPYRIMIDINE COMPLEXES

P. A. Williams et al. Transition Metal Chemistry, October 1979, 4, 333-34

Reactions of tris-(2,2'-bipyrimidine)Fe in aqueous solution with cyanide or azide ions are reported briefly.

258. IRON THIOCOMPLEXES

L. Milone et al. Transition Metal Chemistry, October 1979, 4, 322-25

The nmr spectra of complexes $(SR)_2Fe_2(CO)_6$, where R is Me or Ph and of $(SMe)_2Fe_2(CO)_5(PBu_3)$ were studied.

259. IRON-CYCLOPENTADIENYL-ALLYL COMPLEXES

R. Baker et al. Synthesis & Reactivity in Inorganic & Metal Organic Chemistry, 1979, 9, (5), 471-77

The syntheses of $(CO)_2CpFe$(2-methoxyallyl) and some of its derivatives are described.

260. IRON-CYCLOPENTADIENYL MIXED-LIGAND COMPLEXES

N. B. Kupletskaya et al. Doklady AN SSSR, 1979, 248, (1), 111-14

The photolytic decomposition reactions of complexes $CpFe(CO)_2CH_2Ar$ were studied, where Ar is phenyl, naphthyl, azulenyl or acenaphthenyl.

261. IRON CHLORIDE-HEXAMETHYLENETETRAMINE CATALYST COMPLEX

GB 1,557,336. Dynamit Nobel. A:8.12.76; P:5.12.79; C:15.12.75 (DE) as 56,322

In a process for the preparation of a bis(chloromethyl)tetrachlorobenzene the catalyst used is a complex of a Friedel-Crafts catalyst, i.e. $FeCl_3.6H_2O$-hexamethylenetetramine.

262. FERROCENIUM-MERCURY ACETATE REACTIONS

B. Floris, G. Illuminati. Gazz Chimica Italiana, June-July 1979, 109, 335-37

Ferrocenium trichloroacetates react with HgOAc to give smooth mercuration but a much faster reaction than expected.

263. FERROCENE

C. Tissier et al. Bull. Societe Chimique France, July/August 1979, I, 306-10

The polarographic half-wave potentials of the ferrocene/ferrocenium couple have been measured polarographically.

264. FERROCENYL CARBOCATIONS

G. Ortaggi et al. Gazzetta Chimica Italiana, 1979, 109, (1-2), 13-17

Seven derivatives of $FeCp_2$, substituted in one or both rings, were isolated as hexafluorophosphate salts.

265. FERROCENE NEUTRON CAPTURE

T. Muto et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1401-03

The chemical consequences of neutron capture in solid ferrocene was investigated and slight differences in retention between recoil atoms of ^{55}Fe and ^{59}Fe were observed.

266. FERROCENYL-SUGAR DERIVATIVES

M. T. Adam et al. Chemical Comm., 1979, (19), 865-66

Ferrocenyl complexes of 2,3,4,6-tetra-O-acetyl-1-thio-β-D-glucopyranose and 1,3,4,6-tetra-o-acetyl-2-amino-2-deoxy-β-D-glucopyranose have been prepared and characterised.

267. FERROCENE SYNTHESIS

H. Alper et al. Angewandte Chemie in English, October 1979, 18, 792

Ferrocenes are obtained by reaction of cyclopentadienes with potassium hydroxide and $FeCl_3$ in THF medium with a crown ether catalyst.

268. FERROCENES

D. Astric et al. J. American Chemical Society, 29.8.79, 101, 5445-47

The complexes $[FeC_5R_5-C_6R'_6]$ (R is Me or H, R' is Et, H or Me) have been prepared and characterised.

269. FERROCENE PRODUCTION

US 4,173,517. Studiengesellschaft. A:1.5.78: P:6.11.79: C:5.5.77 (DE) as 20,165

Ferrocene is produced directly from Fe and cyclopentadiene by electrolysing a conductive salt-containing solution of a monomeric cyclopentadiene compound in an inert solvent, between a Fe electrode and a cathode which is inert to the electrolyte.

270. FERROCENYLMETHYL ETHERS

V. A. Mironov et al. Zh. Obshchei Khimii, November 1979, 49, 2521-23

The preparation and some properties of complexes $CpFeC_5H_4CH_2OR$ are reported, where R is Et, Bu, octyl, $CH_2CH{=}CH_2$, CH_2CH_2OH or $CH_2CH_2OCH_2CH_2OH$.

271. FERROCENE-METHYL ESTER COMPLEXES

N. A. Meier et al. Zh. Obshchei Khimii, November 1979, 49, 2518-21

The preparation and some properties of complexes $CpFeC_5H_4(CH_2)_nCOOMe$ are reported, where n is 2, 3 or 5.

272. FERROCENES

S. P. Gubin et al. Doklady AN SSSR, 1979, 248, (2), 385-88

The redox properties of several ferrocene-ferricene systems $CpFeC_5H_4Y$ were investigated.

273. COPPER OR IRON ACETATES AND NAPHTHENATES

US 4,171,450. Atlantic Richfield. A:22.6.77 as 808,939: P:16.10.79

Cu and Fe acetates and naphthenates are used as oxidant salts in the preparation of unsaturated diesters by oxidative diolefin carbonylation.

274. COBALT AND IRON CYCLOHEXYLETHYNYL COMPLEXES

E. Rajas et al. J. Organometallic Chemistry, 20.11.79, 181, 365-73

Six co-ordinate complexes $K_4[ML_6].nNH_3$, $K_2[CoL_4(NH_3)_2]$ and $K_4Fe(CN)_4L_2$ and four co-ordinate complexes $(Ph_3P)_2ML_2$, where L is cyclohexylethynyl, M is Co and Fe and n is 2 or 0 have been prepared and characterised.

275. COBALT AND IRON DIPICOLINATES

A. G. Mauk et al. J. American Chemical Society, 15.8.79, 101, 5054-56

The electron transfer reactions of Fe and Co dipicolinates with cyclochrome C enzymes have been studied.

276. COBALT CARBONYL PHOSPHINO-ETHANE CATALYST

K. Kurata et al. Chemical Comm., 1979, (18), 785-86

The complex $[Co_2(CO)_8L]$ (L is 1,2-bis(diphenylphosphino)ethane has been found to catalyse the hydroformulation of propylene with carbon monoxide and water.

277. COBALT METHYLCYSTEINE

G. J. Gainsford et al. Chemical Comm., 1979, (18), 802-03

The preparation and characterisation of $\{CoL_2L'\}(NCS)_2$ (L is ethylenediamine, L' is methylcysteinate) is reported.

278. COBALT ALKYLPHENOTHIAZINE COMPLEXES

E. Pelizzetti et al. J. Chemical Society, Dalton Trans., 1979, (10), 1516-18

Kinetics of electron transfer between Co in aqueous perchlorate solutions and N-alkylphenothiazines has been investigated by stopped-flow techniques. The complexes are of pharmaceutical interest.

279. COBALT CYCLOPENTADIENYL ACETONITRILE AND ACETONE COMPLEXES
C. White et al. J. Chemical Society, Dalton Trans., 1979, (10), 1524-30
Reaction of complexes $CoL(solvent)_3X$ generated from $CoLI_2(CO)$ or $Co(L)I_2$ have been studied, where the solvent is acetonitrile and acetone and L is pentamethylcyclopentadienyl.

280. COBALT CYCLOPENTADIENYL ARENE COMPLEXES
C. White et al. J. Chemical Society, Dalton Trans., 1979, (10), 1531-38
Investigation into various routes for the preparation of CoCp-arene and Co(Cp')-arene complexes, where arene is indole, benzene, mesitylene and substituted benzenes, has been carried out: Cp' is pentamethylcyclopentadienyl.

281. COBALT METHYL DITHIOCARBAZATE COMPLEXES
A. Monaci et al. J. Chemical Society, Dalton Trans., 1979, (10), 1435-40
Ligand behaviour of methyl esters of dithiocarbazic acid (LH) and of 2-methyldithiocarbazic acid in Co complexes has been investigated and one Co(LH)(L) complex has been characterised.

282. COBALT-ISOCYANIDE-TCNE SPECTRA
M. Okajima, K. Kawakami. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1501-2
Dynamic nmr spectra are provided for Co(I) tetrakis(isocyanide)(TCNE) complexes containing a variety of isocyanides.

283. COBALT DIMETHYL SULPHOXIDE COMPLEXES
W. L. Reynolds et al. Inorganic Chemistry, October 1979, 18, 2860-63 & 2864-66
Competitive reactions occur in the assisted aquations of the DMSO complex of pentaammine Co ions.

284. COBALTOCARBORANE TRIMETHYLAMINE COMPLEXES
L. J. Todd et al. Inorganic Chemistry, October 1979, 18, 2883-86
$(CpCo)B_9H_9C.NMe_3$ has been prepared by reaction of $B_9H_{11}C.NMe_3$ with NaH and subsequent treatment with NaCp and $CoCl_2$.

285. COBALT PIPERIDINE COMPLEXES
G. C. Pellacani et al. Inorganic Chemistry, October 1979, 18, 2652-58
Compounds of the type R_2CoX_4 where R is N-ethyl-, 2-ethyl and 4-benzyl-piperidine have been prepared and characterised using magnetic moment techniques and electronic spectra.

286. COBALT-ETHYLENEDIAMINE COMPLEXES
P. Natarajan et al. Indian J. Chemistry, August 1979, 18A, 165-66
The photodecomposition of $[Co(en)_2(NO_2)_2]$ to $[Co(en)_2(NO_2)ONO]$ and Co was investigated.

287. COBALT BORODIMALATE AND BORODICITRATE
G. S. Sergeeva et al. Izvestiya AN Latviiskoi SSR, 1979, (5), 525-29
The preparation and some properties of complexes $Co(BL_2)_2.nH_2O$ are reported where L is citrate or malate.

288. COBALT COMPLEX WITH A TRIPHENYLMETHANE DYE
M. K. Akhmedli et al. Azerbaidzhanskii Khimicheskii Zh., 1979, (3), 120-24
Factors affecting the spectrophotometric determination of cobalt as CoL_2 were investigated, where L is glycine cresol red.

289. COBALT COMPLEXES WITH TETRAKIS(DIPHENYLPHOSPHINOMETHYL)METHANE
H. Behrens et al. Z. Naturforschung, October 1979, 34B, 1362-68
The preparation and some properties of $[Co(CO)_2(Ph_2PCH_2)_3CCH_2PPh_2][Co(CO)_4]$ and several of its derivatives are reported.

290. COBALT-METHYLPHOSPHANE COMPLEX
H. F. Klein et al. Z. Naturforschung, October 1979, 34B, 1391-97
The preparation and some properties of dimethylphosphido dimethylphosphanomethanidotetrakis(trimethylphosphane) dicobalt $(Me_3P)_2Co(CH_2PMe_2)(PMe_2)Co(PMe_3)_2$ are reported.

291. COBALT SALICYLATE COMPLEX
A. C. Dash et al. Indian J. Chemistry, March 1979, 17A, 296-97
The kinetics of displacement of the water molecule in aquopentaammine Co by salicylate was investigated.

292. COBALT-NITRILOACETIC ACID COMPLEXES
R. K. Hessley et al. Canadian J. Chemistry, 1.9.79, 57, 2292-96
The complexing of Co with cyclohexane-1,2-dinitrilotetraacetic acid was investigated spectrophotometrically and is discussed.

293. COBALT-UNSATURATED IMIDAZOLE COMPLEX
V. I. Sokol et al. Koordinatsionnaya Khimiya, 1979, 5, (11),1725-31
The crystal and molecular structure of $CoCl_2$ (vinyl hydroxymethyl imidazole) was determined and refined.

294. COBALT-TETRAPHENYLPORPHYRINE COMPLEXES
A. V. Baevskii et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1674-78
The formation of adducts between Co tetraphenylporphyrinate and pyridine, piperidine, dioxane, DMSO or THF was investigated.

295. COBALT ETHYLENE DIAMINE DIACETATE-ETHYLENEDIAMINE
A. L. Poznyak et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1670-73
The photolytic reactions of $\{Co(EDDA)(en)\}ClO_4$ in solution were investigated.

296. COBALT-ETHYLENEDIAMINE MIXED-LIGAND COMPLEXES
S. S. Dodwad et al. Indian J. Chemistry, January 1979, 17A, 100-01
The nmr spectra of several complexes $Coen_2(L)Cl\ Cl_2$ were measured, where L is dicyandiamide, pyridine or a substituted aniline.

297. COBALT-ETHYLENEDIAMINE COMPLEXES
G. S. De et al. Indian J. Chemistry, January 1979, 17A, 36-39
The kinetics of substitution of the aquo ligands in cis-diaquolis (ethylenediamine) Co ion by ethylenediamine was investigated.

298. COBALT PYRROLIDINE CARBOXYLATE
T-C. Woon et al. Australian J. Chemistry, August 1979, 32, 1661-67
The complexes $Na\{CoL(CO_3)\}3H_2O$, $\{CoL(H_2O)_2\}ClO_4.2H_2O$ and $\{CoL(H_2O)Cl\}1.5H_2O$ (L is 1,1'-(ethane-1,2-diyl)bis(pyrrolidine-2-carboxylate) have been prepared and characterised.

299. COBALT ALKYL AND ARYL CARBAMODITHIOATES
L. R. Gahan et al. Australian J. Chemistry, August 1979, 32, 1653-60
The thermal racemisation of optically active Co tris(N-substituted carbodithioates (substituents are diphenyl, dimethyl, diisopropyl or tetramethylene (pyrrolidinyl)) has been studied.

300. COBALT BENZENETHIOLATE
I. G. Dance. J. American Chemical Society, 10.10.79, 101, 6264-73
The preparation and characterisation of tetra-(Co benzenemethiolato)-hexa(benzenethiolate) is reported.

301. COBALT PYRIDINE-ACETYLACETONIMINATE
J. J. Pignatello et al. J. American Chemical Society, 26.9.79, 101, 5929-39
The preparation and characterisation of Co(III) dipyridine-ethylenebis-(acetylacetoniminate)is reported.

302. COBALT ACETYLACETONATE AS OXIDATION CATALYST
B. F. Malikov et al. Khimiya i Khimicheskaya Tekhnologiya, 1979, 22, (10), 1226-29
The kinetics of dehydroabietic acid oxidation in the presence of $Co(acac)_2$ was investigated.

303. COBALT MIXED-LIGAND COMPLEXES WITH ETHYLENEDIAMINE AND DIETHANOLAMINE
V. V. Udovenko et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3034-39
The preparation and some properties of Co bromide mixed-ligand complexes with ethylenediamine and diethanolamine are reported.

304. COBALT-METHYLAMINE COMPLEXES
Yu. N. Shevchenko et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3040-45
The preparation and some properties of complexes $[Co(MeNH_2)_5X]X_2$ and $[Co(MeNH_2)_6]Br_3$ are reported.

305. COBALT-DIALKYLDITHIOPHOSPHATE-AMINE COMPLEXES
V. N. Kirichenko et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3064-69
The preparation and some properties of complexes $CoL_2L'_n$ are reported, where L is diethyldithiophosphate or (in two cases only) di-2-ethylhexyl-dithio phosphate, and L' is phenanthroline, bipyridine, imidazole, pyridine, amino-pyridine, dimethylpyrazole or quinoline.

306. COBALT CARBOXYLATE
Yu. T. Vigranenko et al. Zh. Prikladnoi Khimii, October 1979, 52, 2182-85
Hydridocobalt tetracarbonyl, a useful catalyst and reagent, is obtained by reaction of $(RCOO)_2Co$ with carbon monoxide and hydrogen, where RCOOH is α-isopropyl-β-isobutyl-acrylic acid.

307. COBALT PORPHYRIN COMPLEXES
C. Gianotti et al. J. Organometallic Chemistry, 20.11.79, 181, C11-13
Formation of the quasi-polycrystalline structure of tetraphenylporphyrin Co(II) and the porphyrinsuperoxo Co_2 complex have been determined using ESR spectroscopy and slow cooling techniques in toluene glass.

308. COBALT NITRITE-DIMETHYLGLYOXIME COMPLEXES
A. I. Shkurpelo et al. Doklady AN SSSR, 1979, 248, (5), 1120-23
The molecular structures of complexes $Na[Co(NO_2)_2digly_2]\cdot 2H_2O$, $[Co(NO_2)digly_2.H_2O]$ and $[Co(NO_2)digly_2.PPh_3]$ were determined.

309. COBALT-AROMATIC ISOCYANIDE MIXED-LIGAND COMPLEXES
C. A. L. Becker. Synthesis & Reactivity in Inorganic & Metal-Organic Chemistry 1979, 9, (5), 445-57
Ligand-substitution reactions between $[Co(CNAr)_5]X_2$ and $(RO)_3P$, $(ArO)_3P$ or PAr_3 were investigated.

310. COBALT MACROCYCLIC AMINE COMPLEXES
H. Macke et al. Helvetica Chimica Acta, 1.9.79, 62, 1806-15
Co(III) chelates of amines such as 1,4,7,10-tetraazadecane on oxygenation give peroxo derivatives.

311. GROUP I AND GROUP III METAL COBALTOCENE PHOSPHONATE COMPLEXES
W. Klaui. Z. Naturforschung, October 1979, 34B, 1403-07
The preparation and some properties of complexes $M[CpCo\{P(O)(OEt)_2\}_3]$ and $[\{CpCo[P(O)(OEt)_2]_3\}_2M']X$ are reported, where M is Li, Na, K or Ag and M' is Al, Ga, In or Tl.

312. POTASSIUM-COBALT-BIURET COMPLEXES
D. G. Brown et al. Z. Naturforschung, October 1979, 34B, 1468-70
X-ray photoelectron spectra were measured for complexes $KCoL_2$ where L is biuret, phenylbiuret or ethylenediaminebiuret.

313. COBALT-TETRAAZACYCLODODECANE COMPLEXES
R. W. Hay et al. Transition Metal Chemistry, October 1979, 4, 288-91
The kinetics and mechanism of acid-catalysed decarboxylation of $[Co(L)CO_3]X$ were investigated, where L is 1,4,7,10-tetraazocyclododecane.

314. COBALT COMPLEXES WITH SULPHUR-CONTAINING SCHIFF BASES
M. F. Iskander et al. Transition Metal Chemistry, October 1979, 4, 300-05
The preparation and some properties are reported of more than 20 complexes of Co with Schiff bases obtained from hydrazine 5-methyl-dithiocarboxylate or thiosemicarbazide.

315. COBALT CARBOXYLATE-AMINE OXIDE COMPLEXES
N. Kumar et al. Transition Metal Chemistry, October 1979, 4, 315-18
The preparation, isolation and characterisation of complexes $[CoL_2L']_2$ are reported, where L is propionate or butyrate and L' is an N-oxide of pyridine, 3-methyl pyridine or quinoline.

316. SOLVENT-INTERCHANGE OF COBALT DIMETHYL FORMAMIDE IONS
M. Glavas et al. J. Chemical Society, Dalton Trans., 1979, (10), 1446-50
Solvent-interchange reactions of $Co(NH_3)_5(OH_2)$ and $Co(NH_3)_5(DMF)$ ions in DMF and water show that aquation proceeds by water molecules replacing intact dimethylformamide molecules.

317. COBALT FORMAZAN DYE, HYDRAZONE OR THIOOXAMIDE
US 4,171,221. Eastman Kodak. A:31.5.77 as 802,094: P:16.10.79. Div Ex 4,045,221
An image-forming element is coated with a composition which contains a Co chelate of a formazan dye, an azophenol or naphthol, a hydrazone or a dithio-oxamide.

318. COBALT AMINE AND GROUP IA METAL PHOSPHONATE PROCESSING SOLUTION
US 4,172,726. Fuji Photo. A:17.8.77: P:30.10.79: C:24.8.76 (JP) as 100,970
A silver halide photographic layer on a support which contains an image-wise distributed material with a catalytic action by processed by a solution containing (a) one or more Co(III) complexes, e.g. of ethylenediamine, diethylene-triamine, triethylenetetramine or EDTA and (b) an, e.g. Group IA metal salt of an organic phosphonic acid.

319. COPPER, COBALT AND NICKEL TEREPHTHALATES
C. L. Sharma et al. Indian J. Chemistry, August 1979, 18A, 183-84
The preparation, isolation and characterisation of complexes ML, $[Cu(en)_2]L$ and $[M'(en)_3]L$ are reported, where L is terephthalate or dithioterephthalate, M is Cu, Co or Ni and M' is Co or Ni.

320. COPPER, COBALT AND NICKEL METHYLPYRAZOLE CARBOXYLATES
S. N. Poddar et al. Indian J. Chemistry, August 1979, 18A, 157-60
The preparation and some properties of complexes $[ML_2(H_2O)_2]$ are reported, where L is 5-methylpyrazole-3-carboxylate and M is Cu, Co or Ni.

321. NICKEL AND COBALT HIPPURATES
M. M. Morelock et al. J. American Chemical Society, 15.8.79, 101, 4858-66
The crystal structures of $ML_2(H_2O)_3.2H_2O$ (M is Ni or Co, L is hippurate) have been prepared and characterised.

322. COPPER-, COBALT- AND NICKEL-BENZOYL PHENYLALANINE COMPLEXES
R. S. Sandhu et al. Thermochimica Acta, October 1979, 33, 391-93
Some thermodynamic functions of Cu, Co and Ni complexes with N-benzoyl phenylalanine are presented.

323. COPPER, COBALT AND NICKEL DIETHYLDITHIOCARBAMATES
K. J. Cavell et al. Thermochimica Acta, October 1979, 33, 383-86 and November 1979, 34, 155-60
A vacuum differential scanning calorimeter study of Cu, Co and Ni diethyldithiocarbamates is presented.

324. COPPER, COBALT AND NICKEL BENZENE DICARBOXYLATES
E. Cardarelli et al. Thermochimica Acta, October 1979, 33, 267-73
Thermal analyses are presented for Cu, Co and Ni phthalates, isophthalates and terephthalates.

325. COBALT- AND NICKEL-ALKYLPYRAZOLE COMPLEXES
A. V. Kessenikh et al. Zh. Strukturnoi Khimii, July-August 1979, 20, 627-31
The nmr spectra of complexes ML_2X_2 were measured, where L is 3,5-diethyl-4-methyl pyrazole and M is Co or Ni.

326. COBALT AND NICKEL TRIOCTYLPHOSPHINE OXIDE COMPLEXES
C. M. Mikulski et al. Synthesis & Reactivity in Inorganic & Metal-Organic Chemicals, 1979, 9, (5), 401-08
The preparation, isolation and characterisation of complexes $[ML_4(OClO_3)]ClO_4$ are reported, where L is $(C_8H_{17})_3PO$ and M is Co or Ni.

327. COBALT AND NICKEL HISTIDINE COMPLEXES
V. P. Vasil'ev et al. Zh. Obshchei Khimii, November 1979, 49, 2608-14
The thermodynamics of formation of Co and Ni complexes with histidine was investigated.

328. NICKEL AMINOCARBOXYLATE
P. C. Nigam et al. J. Physical Chemistry, 9.8.79, 83, 2090-96
The kinetics of formation of the tetracyanonickelate ion by reaction of cyanide ion with NiL was investigated, where L is trimethylenediaminetetraacetate.

329. NICKEL-β-DIKETONATES
W. Kakolowicz et al. Thermochimica Acta, September 1979, 32, 19-26
Standard enthalpies of formation were determined for Ni complexes with acetylacetone, benzoylacetone and dibenzoylmethane.

330. NICKEL-AMINO ACID COMPLEXES
O. Enea et al. Thermochimica Acta, October 1979, 33, 311-12
Standard enthalpies and entropies of formation were determined for binary and ternary Ni-/glycine-/alanine complexes.

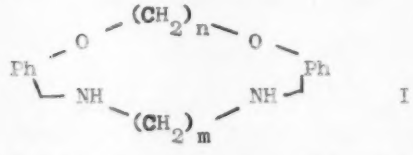
331. NICKEL MONO(DIMETHYLGLYOXIMATE)
K. Uhle et al. J. fur praktische Chemie, 1979, 321, (4), 601-04
The preparation and some properties of Ni mono(dimethylglyoximate) are reported.

332. NICKEL ACETYLACETONATE IN AN ETHYLENE-OLIGOMERISATION CATALYST
SU 545,141. N. M. Seidov et al. A:8.4.74 as 2,013,116: P:15.8.79
The oligomerisation of ethylene in hydrocarbon medium is catalysed by a system containing (a) a product of reaction of Al with isopropyl or isobutyl chloride and (b) $Ni(acac)_2$.

333. TRANSITION METAL ALKYL ISOCYANIDES
P. Brant et al. J. American Chemical Society, 29.8.79, 101, 5453-54
The X-ray photoelectron spectra of $Ni(CNBu)_4$, $[M(CNMe)_4(PF_6)_2]$-$[M_2(CNMe)_4PF_6)_2]$ (M is Pt or Pd) have been determined.

334. NICKEL ACETATE
G. E. Kuz-minskaya et al. Ukrainskii Khimicheskii Zh., October 1979, 45, 941-44
The kinetics of Ni complexing with acetic acid was investigated.

335. NICKEL MACROCYCLES
K. R. Adam et al. Chemical Comm., 1979, (18), 812-13
The preparation and characterisation of $NiBa_2$ complexes of the macrocycles I



(n is 2, 3 or 4, m is 2 or 3) is reported.

336. NICKEL ETHANE-DIAMINE COMPOUNDS
O. Kahn et al. J. Chemical Society, Dalton Trans., 1979, (10), 1575-80
The temperature dependence of the magnetic susceptabilities of $Ni_2L_4X_2$, where L is ethane-1, 2-diamine has been established.

337. NICKEL PHOSPHINE CATALYSTS
L. Hagelee et al. J. American Chemical Society, 15.8.79, 101, 4888-92
The complexes $[Ni(PPh_3)_2(CO)_2]$, $[NiL(CO)_2]$ (L is 1,2-bis(diphenylphosphino-ethane) and $NiL'_2{+}PPh_3$ (L' is 1,5-cyclooctadiene) are catalysts for the dimerisation of diquinoethylene to tetraquinocyclobutene.

338. NICKEL MACROCYCLIC COMPLEXES
H. Cohen et al. Inorganic Chemistry, October 1979, 18, 2763-66
Kinetics of oxidation of NiL_2 ions to Ni(III) (where L is mesohexamethyl-tetraazacyclotetradecane) by OH radicals and subsequent complexation by sulphate ion has been studied in aqueous media by pulse radiolytic technique.

339. NICKEL POLYAMINE CHELATE COMPLEXES
R. D. Hancock et al. Inorganic Chemistry, October 1979, 18, 2847-52
Empirical force field calculations are used to show that the steady decrease in enthalpy change on complex formation per nitrogen donor atom, in complexes of polyamine ligands $H(NHCH_2CH_2)_xNH_2$ with Ni, as x increases from 1 to 4 is due to cumulative ring strain.

340. NICKEL-PHENYLHYDRAZONE COMPLEXES
A. C. Banciu. Revue Roumaine de Chimie, August 1979, 24, 1137-42
Some spectral properties of complexes NiL_2 were studied, where L is 1-methyl-2-carbethoxy-glyoxalanil-(m- or p) chloro-phenyl hydrazone.

341. NICKEL ISOPROPYLMERCAPTOQUINOLINATE
L. Ya. Pech et al. Izvestiya AN Latviskoi SSR, 1979, (5), 623
The crystal structure of $Ni\{C_9H_5(iPr)NS\}_2$ was determined.

342. NICKEL-METHYLPYRIDINE COMPLEX
P. Starzewski et al. Polish J. Chemistry, 1979, 53, (8), 1869-81
Factors affecting the clathration of xylene by $Ni(NCS)_2(4\text{-methyl-pyridine})_4$ were investigated.

343. NICKEL-TERTIARY PHOSPHINE MIXED LIGAND COMPLEXES
H. Schafer. Z. Naturforschung, October 1979, 34B, 1358-61
The preparation and some properties of complexes $(R_3P)_2Ni(PSiMe_3)_2$ and $\{R_3PNiP(SiMe_3)_2\}_2$ are reported, where R is Me, Et or Bu.

344. NICKEL-ETHANOLAMINE-ALCOHOL COMPLEXES
E. J. Timofeeva et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1679-82
Complex formation in systems containing Ni, monoethanolamine and ethylene glycol or glycerol was investigated.

345. NICKEL-IMINE MIXED LIGAND COMPLEXES
C. C. Patel et al. Indian J. Chemistry, February 1979, 17A, 189-91
The ligand-exchange reactions of complexes NiLL' with some diamines were investigated, where L is an alkylisonitroso-ethylacetato acetate imine or benzoyl-acetone imine and L' is isonitrosoacetyl acetone imine.

346. NICKEL-THIOACETHYDRAZIDE COMPLEXES
D. N. Sothyanarayana et al. Indian J. Chemistry, February 1979, 17A, 134-36
The i.r. spectra of $Ni(thioacethydrazide)_2$ were measured and analysed.

347. NICKEL ACETYLACETONATE ALCOHOLATES
R. C. Mehrota et al. Indian J. Chemistry, January 1979, 17A, 77-78
The preparation, isolation and characterisation of complexes $Ni(acac)_2.ROH$ are reported, where R is Me, Et, Pr, Bu or amyl.

348. NICKEL-THIOUREA COMPLEX
G. Basu et al. Indian J. Chemistry, January 1979, 17A, 5-8
Single-crystal spectra of three different faces of $Ni(thiourea)_4Cl$ were measured.

349. NICKEL TRIS(TRICYCLOHEXYLPHOSPHINE)
P. Favero et al. Gazzetta Chimica Italiana, 1979, 109, (1-2), 27-28
The facile cleavage of the C-CN bond in alkyl cyanides by reaction with $Ni\{P(Cx)_3\}_3$ is reported.

350. NICKEL DIETHYLDITHIOCARBAMATE
P. J. Nichols et al. Australian J. Chemistry, August 1979, 32, 1679-86
A stable form of $(NiL)^+$ (L is diethyldithiocarbamate) has been produced in Me_2SO solutions.

351. NICKEL CYCLOOCTADIENE
P. J. M. Reiynders et al. Rec Travaux Chimiques Pays Bas, October 1979, 98, 511-14
Ni 1,5-cyclooctadiene is used in the molecular coupling reactions of 3,3'-polymethylenebis(allyl bromides) which give 1,5-cyclodienes.

352. NICKEL CARBORANES
J. R. Bowser et al. J. American Chemical Society, 10.10.79, 101, 6229-36
The crystal structure of $Ni_4Cp_4B_4H_4$ has been determined.

353. NICKEL CYCLOPENTADIENYL HYDRIDE
T. F. Koetzle et al. J. American Chemical Society, 12.9.79, 101, 5631-37
The neutron diffraction analysis of $[Ni_4H_3(Cp)_4]$ is reported.

354. PLATINUM PHOSPHINE HYDROFORMYLATION CATALYST
CH 614,186. Lonza. A:30.10.75 as 14,045: P:15.11.79
The asymmetric hydroformylation of prochiral olefins, e.g. styrenes is catalysed by a mixture of stannous chloride and a complex $LPtCl_2$, where L is an optically active di-tertiary phosphine derivative, preferably 2,2-dimethyl-4,5-bis(diphenylphosphinomethyl)-1,3-dioxolane.

355. PLATINUM GROUP METAL PHOSPHINE, ARSINE OR STIBINE CATALYSTS
GB 2,022,086. Atlantic Richfield. A:23.5.79: P:12.12.79: C:26.5.78 (US) as 910,058
Pt group metal phosphines, arsines or stibines, e.g. $RhBr_3(PPhEt_2)_3$ or $PdI_2(PPh_3)_2$ can be used as catalysts for the preparation of unsaturated monoesters by the oxidative carbonylation of diolefins.

356. PLATINUM BIPYRIDINE CATION
C. Parver et al. J. American Chemical Society, 26.9.79, 101, 6118-20
A nmr spectral study of the Pt bis(2,2'-bipyridine) cation is reported.

357. COBALT, PLATINUM AND MOLYBDENUM PHENYLETHANEDIAMINE
C. J. Hawkins et al. Australian J. Chemistry, July 1979, 32, 1433-42
Circular dichroism spectra for the complexes trans-$CoL_2Cl_2^+$, trans-$[CoL_2Br_2]^+$, $[CoL(NH_3)_4]^{3+}$, $[CoL(CN)_4]^-$, $[MoL(CO)]_4$ and $[PtL(L')]_2^{2+}$ (L is 1-phenylethane-1,2-diamine, L' is pyridine) are reported.

358. PLATINUM DIHYDROLIS(TRI-t-BUTYL PHOSPHINE)
G. Ferguson et al. J. Chemical Research, November 1979, 4337-64
The crystal and molecular structure of $H_2Pt(tBu_3P)_2$ was determined and refined.

359. PLATINUM-BIPYRIDINE-ALKYNE COMPLEXES
R. J. Puddephatt et al. Canadian J. Chemistry, 1.10.79, 57, 2549-54
The kinetics and mechanism of formation of complexes $[PtIMe(MeO_2CC{\equiv}CCO_2Me)(bipy)]$ and $[PtMe\{C(CO_2Me){=}C(CO_2Me)I\}(bipy)]$ were investigated.

360. PLATINUM GROUP METAL COMPLEXES WITH PYRIDAZINE TRITHIOL
U. Agarwala et al. Indian J. Chemistry, March 1979, 17A, 276-78
The preparation, isolation and characterisation of Pd, Rh, Ru and Pt complexes with pyrazine-3,4,5-trithiol are reported.

361. PLATINUM GROUP METAL-THIOSEMICARBAZIDE AND THIOSEMICARBAZONE COMPLEXES
S. K. Sahni et al. Indian J. Chemistry, August 1979, 18A, 161-64
The preparation, isolation and characterisation of Pd, Pt, Ru and Rh complexes with nicotinamido-thiosemicarbazide or thiosemicarbazone or a substituted-benzamido thiosemicarbazone are reported.

362. PLATINATHIADECABORANES
R. W. Rudolph et al. Inorganic Chemistry, October 1979, 18, 2642-51
Platinathiaboranes prepared by the reaction of L_4Pt where L is a phenyl, ethyl or phenyl methyl phosphine with SB_9H_9 in ethanol have been characterised as $(PPh_3)_2Pt(SB_8H_{10})$ and $(PPh_3)_2Pt(SB_8H_9)(OEt)$.

363. PLATINUM PHOSPHINE BENZENE COMPLEXES
R. Ugo et al. J. Chemical Society, Dalton Trans., (10), 1979, 1624-29
$[Pt_2(O)_2(OH)(PPh_3)_4][ClO_4]$.2 benzene has been prepared by protonation of $Pt(O_2)(PPh_3)_2$ and has been characterised.

364. PLATINUM DIPHENYLPHOSPHINO METHANE METHYLENE AND THIO COMPLEXES
M. P. Brown et al. Inorganic Chemistry, October 1979, 18, 2803-13
Insertion of methylene, SO_2 and $S_8(X)$ into the Pt-Pt bond of the complex $Pt_2Cl_2L_2$, where L is (diphenyl phosphino)methane, gives adducts $Pt_2Cl_2(X)L_2$. Reaction between the hydride $Pt_2H_2(H)(L_2).PF_6$ and methanethiol gives $Pt_2H_2(SMe)(L_2).PF_6$.

365. AMINE PLATINIUM PHOSPHINE CATALYSTS
J. Ambuehl et al. J. Organometallic Chemistry, 13.11.79, 181, 255-69
In the synthesis of catalysts for the cyclisation of aminoolefins, the complexes $PtCl_2L(PEt_3)$ were used where L is dimethyl pyrrolidine (cis-2,4- and cis-2,3-).

366. PLATINUM PHOSPHINE-VINYL ACETATE AND ALLYL ACETATE COMPLEXES
B. L. Shaw et al. J. Organometallic Chemistry, 13.11.79, 181, 213-21
Bridged chloroplatinum phosphine complexes react with vinyl acetate and allyl acetate (Q) to give $PtCl_2(PR_3)Q$ complexes.

367. PLATINUM SQUARATE
H. Toftlund. Chemical Comm., 1979, (19), 837-38
The partially oxidised form of Pt bis(squarate) has been prepared and characterised.

368. PLATINUM DIFLUOROPHOSPHONATE
S. Neumann et al. Chemical Comm., 1979, (19), 848-49
The crystal structure of $[Pt(Cl)\{Pt(O)F_2\}(PEt_3)]_2$ has been determined.

369. PLATINUM CYANOPYRIDINE ADDUCTS
J. Burgess et al. J. Chemical Society, Dalton Trans., 1979, (10), 1539-41
Rates, rates law and rate constants are reported for the reaction of cis-$[Pt(cyanopyridine)_2Cl_2]$ with thourea, thiocyanate and iodine, in methanol.

370. PLATINUM ALLYL (PHOSPHORUS CYCLOHEXYL) COMPLEXES
B. E. Mann et al. J. Organometallic Chemistry, 20.11.79, 181, 439-43
The dynamic behaviour of $Pt(allyl)(PCX_3)_2.PF_6$ has been investigated and earlier interpretation of restricted rotation about Pt-P endorsed.

371. PLATINUM TRICHLORIDE-ETHYLENE ADDUCTS
J. Halpern et al. J. Organometallic Chemistry, 13.11.79, 181, 223-232
Oxidation of $PtCl_3(C_2H_4)^-$ ions by Cl_2 to CH_2ClCH_2OH and $PtCl_3^-$ ions is shown to proceed via $PtCl_5(CH_2CH_2Cl)^-$ and $PtCl_5(CH_2CH_2OH)^-$ ions.

372. PLATINUM ETHYLENE PHOSPHINE OXIDATIVE ADDITION
G. Butler et al. J. Organometallic Chemistry, 13.11.79, 181, 47-59
Reactions between $Pt(C_2H_4(PPh_3)_2$ and Sn halide complexes have been studied. With Ph_2SnCl_2 insertion into the Sn-C bond was obtained giving $PtPh(SnPhCl_2)(PPh_3)_2$, whereas $SnMe_2Cl_2$, $SnPhCl_3$, $SnMeCl_3$ and $SnCl_4$ gave products of insertion into the Sn-Cl bond, viz $PtCl(SnCl_nR_{3-n})(PPh_3)_2$.

373. PLATINUM-MANGANESE-DIPHENYLPHOSPHINE COMPLEX
P. Braunstein et al. Angewandte Chemie in English, October 1979, 18, 797-98
The preparation and some properties of $PtMn_2(PPh_2)_2(CO)_9$ are reported.

374. PLATINUM-AMINOACID COMPLEXES
O. P. Slyudkin et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3051-59
The stereochemistry of complexes $[PtL(L)X]$ and $[PtL(L')X]$ was investigated, where L is proline and L' is glycine.

375. PLATINUM DIAMINE
M. Alei et al. J. American Chemical Society, 29.8.79, 101, 3415-17
The ^{1}SN nmr spectra of cis-Pt diamine complexes (diamine is ethylene-diamine or diethylenetriamine) are reported.

376. PLATINACYCLOBUTANES
T. H. Johnson et al. J. American Chemical Society, 29.8.79, 101, 5277-80
Pt cyclobutanes decompose to give 2,3-dimethylbut-ienes by a process of hydrogen abstraction followed by reductive elimination.

377. PLATINUM-ETHYLENE-DIETHYLAMINE COMPLEXES
M. Green et al. Transition Metal Chemistry, October 1979, 4, 308-12
The nmr spectra of $PtCl_2(C_2H_4)(NHEt_2)$ and some related complexes were studied.

378. PLATINUM-AMINO ACID COMPLEXES
P. Zaplatynski et al. Z. Naturforschung, October 1979, 34B, 1466-67
Electron spin resonance spectra of the complexes $Pt(NH_3)_2Cl_2$, cytosine and $Pt(NH_3)_2(H_2O)_2$, thymine were measured.

379. PLATINUM PHOSPHINE BICYCLONONENE ISOMERISATION
E. Stamm et al. Helvetica Chimica Acta, 31.10.79, 62, 2181-85
The bicyclononene ligand in the Pt(0) complex with triphenyl phosphine undergoes spontaneous isomerisation.

380. PLATINUM ETHYLENE PYRIDINE COMPLEX SPECTRA
H. Motschi et al. Helvetica Chimica Acta, 31.10.79, 62, 2086-90
Pt and N coupling constants are determined from the nmr spectra of the $PtCl_2$(ethylene)(substituted pyridine) complex where the substituent is methyl, dimethyl, acetyl, etc.

381. NICKEL, PALLADIUM AND PLATINUM PHOSPHINOALKANES
A. J. Carty et al. J. American Chemical Society, 12.9.79, 101, 5612-19
The complexes cis$[MCl_2(Ph_2PCH{=}C(R)L)]$ (L is PR'R", P is CF_3, Ph, t-Bu, R' is Ph, Et or C_2H_4CN, R" is Et or C_2H_4CN, M is Ni, Pd or Pt) have been prepared and characterised.

382. PALLADIUM AND PLATINUM TRITHIOLAN COMPLEXES
J. Emsley et al. J. Chemical Research, August 1979, 2966-83
The preparation and some properties of Pd and Pt complexes with the polycyclic ligands $C_5H_{18}S_3$, $C_7H_{10}S_3$ or $C_{10}H_{12}S_3$ are reported.

383. NICKEL, PALLADIUM AND PLATINUM TRIMETHYL PHOSPHITES
R. J. Goodfellow et al. J. Chemical Research, November 1979, 378-79
P-P coupling data were determined for complexes $M[P(OMe)_3]_4$ where M is Ni, Pd or Pt.

384. PLATINUM- AND PALLADIUM-HISTAMINE COMPLEXES
V. A. Tomilets et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3131-33
The complexing of Pd and Pt derivatives with histamine was investigated.

385. PALLADIUM AND PLATINUM PHOSPHINE ACETYLENE COMPLEXES
A. J. Carty et al. J. American Chemical Society, 29.8.79, 101, 5422-24
The complexes cis-$MCl_2(Ph_2PC{\equiv}CPh)_2$ (M is Pt or Pd) have been prepared and characterised.

386. PLATINUM AND PALLADIUM CROWN ETHER COMPLEXES
B. L. Shaw, I. Shepherd. J. Chemical Society, Dalton Trans., 1979, (10), 1634-38
Some benzo-crown ethers substituted in the arene ring are described, e.g. 15-X-substituted benzo-(15-crown-5) ethers where X is nitrile, imino, etc. They form 1:2 complexes with Pt and Pd dihalides.

387. PALLADIUM (DIPHENYLPHOSPHINO)BUTANE
P. S. Elmes et al. J. American Chemical Society, 26.9.79, 101, 6128-29
Pd 2,3-o-isopropylidene-2,3-dihydroxy-1,4-bis(diphenylphosphino)butane is a catalyst for the reaction of norbornene with hydrogen cyanide to give 2-oxo-cyanonorbornane.

388. PALLADIUM AMINE-PHOSPHINE COMPLEXES
N. K. Roberts et al. J. American Chemical Society, 10.10.79, 101, 6254-60
The preparation and properties of Pd dimethyl(α-methylbenzyl)aminato-2-[o-phenylenebis(methylphenylphosphine] is described.

389. PALLADIUM DIETHYLETHANE-DIAMINE
D. A. Palmer et al. Australian J. Chemistry, July 1979, 32, 1415-24
A study of the pressure dependencies of the nucleophile-independent rate constants for the reactions of $[(PdLX)]^{n+}$ with various neucleophiles is reported (L is N'-[2-(diethylamino)ethyl]-diethylethane-1,2-diamine).

390. PALLADIUM BISTRIPHENYLPHOSPHITE DIBROMIDE
A. N. Nyrkova et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1683-88
The active catalyst for carbonylation of acetylene to butyl methacrylate is $Pd\{P(OPh)_3\}Br_2$.

391. PALLADIUM- AND ZINC-SCHIFF BASE COMPLEXES
[illegible] et al. Indian J. Chemistry, August 1979, 17A, 1[illegible]

391. PALLADIUM- AND ZINC-SCHIFF BASE COMPLEXES
D. Ramaswamy et al. Indian J. Chemistry, August 1979, 18A, 189-90
Pd and Zn complexes with Schiff bases derived from salicylaldehyde and 4-, 5- or 6-methyl-2-amino-pyridine were prepared and characterised.

392. PALLADIUM TERT-BUTYL PHOSPHINE COMPLEXES
H. C. Clark et al. Inorganic Chemistry, October 1979, 18, 2803-08
Pd hydrides, trans-PdH(X)($Pt\text{-}Bu_3$)$_2$ where X is Cl and CF_3COO, prepared by the oxidative addition of HX to Pt bis(tri-t-butyl phosphine), undergo facile intramolecular metalation in solution producing complexes PdX($PtBu_2CMe_2CH_2$)-($PtBu_3$). These complexes, in dichloromethane or benzene, lose 1 mole equiv. of phosphine to give bridged dimeric complexes which can be split by a variety of ligands.

393. PALLADIUM DIALKYL TELLURIDE COMPLEXES
H. J. Gysling et al. Inorganic Chemistry, October 1979, 18, 2696-2700
The dialkyl telluride, $Te[(CH_2)_n SiMe_3]_2$, n is 1 or 3, has been prepared by alkylation of Na_2Te with corresponding alkyl chlorides and co-ordination complexes with $PdCl_2$ and $Pd(SCN)_2$ obtained trans-$Pd(SCN)_2\{Te(CH_2)_3SiMe_3\}_2$. has been characterised.

394. ALLYL PALLADIUM COMPOUND PRODUCTION
R. C. Larock, J. P. Burkhart. Synthetic Comm., July 1979, 9, 659-64
Olefins can be chlorinated and the allyl chlorides reacted with CO and $PdCl_2$ to give substituted allyl Pd chlorides, e.g. from heptene.

395. ALLYL PALLADIUM CHLORIDE CATALYST
M. Jura et al. J. Organometallic Chemistry, 20.11.79, 181, C17-C20
Allyl Pd chloride in the presence of triphenyl phosphine catalyses the reaction of arene sulphinic acids (or their Na salts) with dienes to give allyl sulphones.

396. PALLADIUM TRIPHENYLPHOSPHINE CATALYST
N. Miyaura et al. Chem Comm., 1979, (19), 866-67
The complex $Pd(PPh_3)_4$ is used as catalyst for the production of arylated alkenes by the reaction of aryl halides and alkenylboranes.

397. PALLADIUM BENZYL CHLORIDES
D. Milstein et al. J. American Chemical Society, 15.8.79, 101, 4981-91
The complexes $PdPhCH_2(PPh_3)_2X$ react with LiMe or $SnMe_4$ to give toluene and methyl toluene in varying yields.

398. PALLADIUM BENZYL CATALYSTS
D. Milstein et al. J. American Chemical Society, 15.8.79, 101, 4992-98
The complexes $[PdPhCH_2(PPh_3)_2Cl][PdCH_2Ph(L)Cl]$ (L is 1,2-bis(diphenyl-phosphino)ethane) and $Pd(PPh_3)_2Cl_2$ are catalysts for the reaction of benzyl chloride with LiMe' and MgMeBr to give various aromatic products, e.g. toluene.

399. PALLADIUM BENZONITRILE IN SYNTHESIS
E. Micione et al. J. Organic Chemistry, 22.6.79, 44, 2320-21
Uranediol is prepared in a one step process by the reaction of Pd dichloro-bis(benzonitrile) with 5α-pregnone-3,3,20,3-diol.

400. PALLADIUM CYCLOPENTADIENYL PHOSPHINE COMPLEX
H. Werner et al. Chemical Comm., 1979, (18), 814-15
The preparation and characterisation of Pd_2 dicyclopentadienyl-bis(tri-isopropylphosphine) is reported.

401. PALLADIUM ANISOLES
D. M. Roundhill et al. J. American Chemical Society, 29.8.79, 101, 5428-30
The preparation and properties of Pd complexes of O-diphenylphosphine-thio(or seleno)anisole is described.

402. PALLADIUM ACETATE-ARYLANINE CATALYST
M. O. Terpko et al. J. American Chemical Society, 29.8.79, 101, 5281-83
The complex $[Pd(OAc)_2P(o\text{-tolyl})_3]$ together with NEt_3 catalyses the cyclisation reactions of various aryl-o-bromoanilines.

403. COBALT, COPPER AND PALLADIUM FLUORIDE DYE COMPLEXES
A. T. Pilipenko et al. Ukrainskii Khimicheskii Zh., 1979, 45, (11), 1101-06
Factors affecting the spectrophotometric determination of Co, Cu and Pd fluorides or their complexes with methyl thymol blue or glycine thymol blue were investigated.

404. PALLADIUM-OXIME COMPLEXES
K. P. Naumova et al. Zh. Obshchei Khimii, November 1979, 49, 2564-69
The preparation and some properties of complexes PdL_2 and $PdLCl_2$ are reported, where L is $HN(OH)CMe_2C(R)=NOH$ and R is H, Me or Ph.

405. PALLADIUM-QUINOLINE COMPLEXES
L. Yu. Ukhin et al. Doklady AN SSSR, 1979, 247, (2), 371-72
The preparation of some dimeric Pd quinoline complexes and their decomposition by triphenylphosphine with formation of $(PPh_3)_2PdCl_2$ are reported.

406. COBALT AND RHODIUM PORPHYRINS
B. B. Wayland et al. J. American Chemical Society, 10.10.79, 101, 6472-73
The complexes $[RhL(O)_2]$, $[CoL(O)_2L']$, $[RhL(O)_2L']$ and $[\overline{ML(BuO)_3}P(O)_2]$ (L is tetraphenylporphyrin or octaethylporphyrin, L' is pyridine or piperidine) have been prepared and characterised.

407. RHODIUM COMPLEXES AS HYDROGENATION CATALYSTS
Z. Kozak et al. Collection Czechoslovak Chemical Communications, September 1979, 44, 2624-32
The kinetics of alkene liquid phase hydrogenation in the presence of homogeneous and heterogenised catalysts prepared in situ from $RhCl_2(cyclooctene)_2$ and 3-(triethoxysilyl)propyl diphenyl phosphine was investigated.

408. RHODIUM DIISOCYANOPROPANE COMPLEXES
H. B. Gray et al. Inorganic Chemistry, October 1979, 18, 2671-73
Visible irradiation of Rh_2L_4 ions where L is 1,3-diisocyanopropane yields hydrogen gas and the complex $(Rh_2L_4Cl_2)Cl_2.8H_2O$. The complexes are used in solar energy storage applications.

409. RHODIUM PENTAMETHYLCYCLOPENTADIENYL COMPLEXES
P. M. Maitlis et al. Inorganic Chemistry, October 1979, 18, 2706-10
$Rh_4(C_5Me_5)_4H_4X$ prepared by the reaction of $[\overline{Rh_2(OH)_3}(C_5Me_5)_2]Cl.4H_2O$ with hydrogen has been characterised.

410. RHODIUM DIPHENYLPHOSPHINO METHANE COMPLEXES
M. Cowie et al. Inorganic Chemistry, October 1979, 18, 2700-2706
The structure of $Rh_2(CO)_2(Cl)(Ph_2PCH_2PPh_2)_2.BF_4$ has been determined, verifying that it is an 'A'-frame species.

411. CHIRAL RHODIUM DIPHOSPHINE CATALYSTS
R. Glaser, S. Geresh. Tetrahedron, 1979, 35, (20), 2381-87
Acylaminocinnamic acids and esters may be asymmetrically hydrogenated using Rh complexes containing a bis(diphenylphosphinomethyl)-2,2-dimethyl-1,3-dioxolan.

412. RHODIUM PHOSPHINE-HYDROGEN ADDITION
A. Dedieu, A. Strich. Inorganic Chemistry, October 1979, 18, 2940-42
Molecular orbital analysis is provided for the oxidative addition of hydrogen to a Rh chloride-triphenyl phosphine complex.

413. RHODIUM PENTAMETHYL CYCLOPENTADIENYL IODIDES
M. R. Churchill, S. A. Julis. Inorganic Chemistry, 18, 2918-20
A structural study is reported for the complex $\{(Me_5Cp)RhI\}_2I_2$.

414. RHODIUM PHOSPHINE-CYCLOOCTADIENE CATALYSTS
W. H. Quayle, T. J. Pinnavaia. Inorganic Chemistry, October 1979, 181, 2840-47
RhCl(COD) reacts with triphenyl phosphine and the positively charged phosphonium phosphine ligand to give mixed ligand cationic analogues of Wilkinson-type complexes. They are active catalysts for hexene hydrogenation.

415. RHODIUM CARBABORANE-PHOSPHINE ADDUCT
Z. Demidowicz et al. Chemical Comm., 1979, (19), 831-32
The preparation and characterisation of $[3-(PPh_3)-3,3-(NO_3)-3,1,2-RhC_2B_9H_{11}]$ is reported.

416. RHODIUM CYCLOHEPTATRIENYL
J. A. K. Howard et al. Chemical Comm., 1979, (19), 839-40
The crystal structure of $[Ru_3(CO)_6(SBut)L]$ (L is cycloheptatrienyl) has been determined.

417. RHODIUM HYDRIDO-PHOSPHINES
T. Yoshida et al. Chemical Comm., 1979, (19), 870-71
The complexes $[RhH(PPr_3')_3]$ and $[Rh_2H_2\{P(cyclohexyl)_3\}_4]$ are catalysts for the hydrogenation of aliphatic and aromatic nitriles.

418. RHODIUM CYCLOPENTADIENYL CATALYST
J. Cook et al. Chemical Comm., 1979, (19), 871-72
The complex $\{Rh_2(C_5Me_5)_2(OH)_3\}Cl.4H_2O$ catalyses the hydration of ethylene to ethanol.

419. RHODIUM ALLYL-PHOSPHINE AND PHOSPHITE ADDUCTS
A. J. Sivak et al. J. American Chemical Society, 15.8.79, 101, 4878-87
The complexes $[RhL(L')_2]$ and $[RhL(L')_3]$ (L is allyl, L' is $P(OR)_3$ (R is Me, i-Pr, Et or t-Bu) or PR'_3 (R' is Me or Ph) have been prepared and characterised.

420. RHODIUM PYRIDINE AND ACETYLACETONATE CATALYSTS
R. S. King et al. J. American Chemical Society, 15.8.79, 101, 4893-96
The complexes $[RhL(CO)_2Cl][RhMeCOO(CO)_2]$ and $[RhL'(CO)_2]$ (L is pyridine, L' is acetylacetonate) are catalysts for the hydroformylation of ethylene).

421. RHODIUM AZA MACROCYCLIC COMPLEXES

R. W. Hay et al. J. Chemical Society, Dalton Trans., 1979, (10), 1441-45

Kinetics of base hydrolysis of cis-$(RhCl_2L)$ cations, where L is tetra-azacyclododecane and tetra-azacyclotetradecane, has been studied.

422. RHODIUM PENTAMETHYLCYCLOPENTADIENYL CATECHOL COMPLEXES

P. M. Maitlis et al. J. Chemical Society, Dalton Trans., (10), 1979, 1542-47

Reaction of $Rh_2(L)_2Cl_4$ with 4-substituted catechols in aqueous base gives dark blue $[Rh(L)(Z)]_2$, where Z is catechol and its H, Cl, Me and tBu derivatives. Preparation and properties of $Rh(L)\{o\text{-}Ph(NH)Y\}$, where Y is O and NH, derived from o-aminophenol or o-phenylenediamine are also reported.

423. RHODIUM-DIISOCYANOPROPANE

US 4,169,030. California Institute of Technology. A:3.8.78 as 930,509: P:25.9.79

The complex $(Rh_2L_4)^{2+}$ (L is 1,3-diisocyanopropane) is a rhodium bridge which can undergo a hydrogen-producing visible photoreaction which is used in a solar-driven water-splitting cycle.

424. RHODIUM TRIALKYLPHOSPHINE COMPLEXES

Y. Yoshida et al. J. Organometallic Chemistry, 13.11.79, 181, 183-201

Reduction of $RhCl_3.3H_2O$ in THF, under a N_2 atmosphere, in the presence of excess phosphine ligand gives the hydridodinitrogen complexes $RhH(N_2)(PPh(tBu)_2)_2$, $RhH(N_2)(P(tBu)_3)_2$ and $RhH(P(Cx)_3)_2(\mu\text{-}N_2)$ and a hydridotriphosphine complex. These complexes are used as precursors for other complexes, one of these a dinitrogen bridged dimer.

425. RHODIUM PENTAMETHYL CYCLOPENTADIENYL PHOSPHINE HEXAFLUOROPHOSPHATE

D. M. P. Mingos et al. J. Organometallic Chemistry, 13.11.79, 181, 169-82

$[Rh(CpMe_5)H(PPh_3)_2]PF_6$ has been characterised.

426. RHODIUM-THIOSEMICARBAZONE COMPLEXES

N. I. Belichuk et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3060-63

The structures of complexes (RhL_2) and (RhLL'Cl) were studied, where L is the thiosemicarbazone or 4-phenylthiosemicarbazone of α-ketoglutaric acid and L' is ammonia, pyridine or water.

427. RHODIUM-CARBORANE

W. C. Kalb et al. J. American Chemical Society, 29.8.79, 101, 5417-19

The preparation and characterisation of 3,3-$(PPh_3)_2$-3-(HSO_4)-3,1,2-$RhC_2B_9H_{11}OEt_2$ is reported.

428. RHODIUM AMINE CATION-RHODIUM ANION COMPLEXES

A. E. Underhill et al. J. Chemical Society, Dalton Trans., 1979, (10), 1569-74

Association is shown to occur in acetonitrile solution for $Rh(CO)_nL$ cations and $Rh(CO)_2X$ anions where L is bipyridine or phenanthroline.

429. RHODIUM COMPLEXES

R. Uson et al. Transition Metal Chemistry, October 1979, 4, 332-33

Reactions of Rh complexes, leading to partial replacement of $P(OPh)_3$ by an arene or pyridine ligand are reported briefly.

430. RHODIUM-TRIPHENYLPHOSPHINE-BUTYLENE COMPLEX

F. d'Amico et al. J. Molecular Catalysis, November 1979, 6, 327-40

The results of kinetic studies indicate that the active catalyst in butylene isomerisation is $RhCl(PPh_3)_2(C_4H_8)$.

431. RHODIUM AND RUTHENIUM PHOSPHINE HYDROGENATION CATALYSTS
B. M. Savchenko et al. Izvestiya AN SSSR, 1979, (11), 2632-34
The reduction of azobenzene to aniline by isopropanol in alkaline medium is catalysed by $RhCl(PPh_3)_3$ or $RuCl_2(PPh_3)_3$.

432. RUTHENIUM AND RHODIUM AMIDES
B. Cetinkaya et al. Chemical Comm., 1979, (19), 843-44
The complexes $[MH_m(NR_2)(PPh_3)_2]$ (when M is Rh, m is 0, when M is Ru, m is 1, R is $SiMe_3$) have been prepared and characterised.

433. RHODIUM AND RUTHENIUM CYCLODIENYL ETHYLENIC TRIMETHYL PHOSPHINE COMPLEXES
H. Werner et al. J. Organometallic Chemistry, 20.11.79, 181, C7-C10
$\{CpRhL_2C_2H_4\}X$ and $C_6H_6L_2C_2H_4X$ where L is PMe_3 have been prepared by the reaction of $\{CpRhEtL_2\}X$ and $\{C_6H_6RuEtL_2\}X$ with $\{CPh_3\}X$. The ethylene ligand in the dications is readily attacked by nucleophilis N to form complexes containing $M-C_2H_4N$ bonds.

434. RUTHENIUM AND RHODIUM CARBOXYLATES
J. G. Norman et al. J. American Chemical Society, 29.8.79, 101, 5256-67
The electronic structure of the complexes $[M_2(OOCR)_4]^+$ (M is Rh or Ru, R is H) has been studied.

435. RUTHENIUM METHYLCYTOSINATE
B. J. Graves et al. J. American Chemical Society, 12.9.79, 101, 5608-12
The crystal and molecular structure of $[Ru(NH_3)_5L](PF_6)_6$ (L is 1-methylcytosinate) has been determined.

436. RUTHENIUM FUMARATE, OLEFIN ACETYLENE COMPLEXES
H. Lehmann et al. J. American Chemical Society, 10.10.79, 101, 6197-6202
The complexes $[Ru(NH_3)_5(L)]S_2O_6.2H_2O$ (L is fumaric acid, ethylene, isobutene, 1,4-cyclohexadiene, acetylene, phenylacetylene or 3-hexene) have been prepared and characterised.

437. RUTHENIUM BIPYRIDYLS
O. Johansen et al. Australian J. Chemistry, July 1979, 32, 1453-70
The surfactant complexes $[RuL_2L']^{2+}$ (L is 2,2'-bipyridyl or o-phenanthroli L' is 4-alkyl-4'-methyl-2,2-bipyridyl, 4,4'-dialkyl-2,2'-bipyridyl or 1,1'-(2,2'-bipyridyl-4,4'-diyl)bis(nonadecan-1-one)) have been prepared and characterised.

438. RUTHENIUM AND OSMIUM VINYLIDENE AND ACETYLIDE COMPLEXES
M. I. Bruce et al. Australian J. Chemistry, July 1979, 32, 1471-85
The preparation and characterisation of the complexes $[Ru(C{=}CHR)(PPh_3)_2Cp]^+$ $[Ru(C{=}CHPh)(L_2)Cp]^+$ and $[Os(C{=}CHPh)(PPh_3)_2Cp]^+$ (R is Me, Pr, CO_2Me, Ph, C_6H_4F-p or C_6F_5, L is CO or PPh_3) is reported.

439. RUTHENIUM-DIMETHYLSULPHOXIDE COMPLEXES
R. J. Goodfellow et al. J. Chemical Research, November 1979, 4301-36
The nmr spectra of some Ru-DMSO complexes were studied.

440. RUTHENIUM-PHOSPHINE-BENZOYL ACETYLACETONATE
S. K. Dikshit et al. Indian J. Chemistry, March 1979, 17A, 304-05
The reaction of trichlorotris(triphenylphosphine) ruthenium with benzoylacetylacetone to give $Ru(acac)(PPh_3)(CO)Cl_2$ is reported.

441. RUTHENIUM DIPHENYL PHOSPHINO ANISOLE
J. C. Jeffrey et al. Inorganic Chemistry, October 1979, 18, 2658-66
The red complex $RuCl_2(Z)$ were Z is o-(diphenyl phosphino) anisole, crystallised from a dichloromethane/hexane solvate has been characterised and some reactions studied. The ruthenium chelates are precursors to active hydrogenation and isomerisation catalysts.

442. RUTHENIUM TRIPHENYL PHOSPHINE ADDUCTS
G. Wilkinson et al. J. Chemical Society, Dalton Trans., 1979, (10), 1618-23
Interaction of $RuH_2(PPh_3)_4$ with bipyridyl, dicyanobenzene, hydroxypyridine, hydroxyquinoline and with other neutral ligands containing N, O and S results in displacement of a phosphine trans to a hydride.

443. RUTHENIUM BIPYRIDYL SYNTHESIS
W. M. Wallace, P. E. Hoggard. Inorganic Chemistry, October 1979, 18, 2934-35
$Ru(bpy)_2X_2$ are prepared photochemically from the Ru tris(bipyridyl) salts.

444. RUTHENIUM BIPYRIDYL
D. P. Rillema et al. Chemical Comm., 1979, (19), 849-51
The crystal structure of $[RuL_3(PF_6)_2]$ (L is 2,2'-bipyridyl) has been determined.

445. RUTHENIUM AZAPENTAENE
C-K. Poon et al. Chemical Comm., 1979, (19), 861-62
The preparation and characterisation of Ru aqua{2,12-dimethyl-3,7,11,17-tetraazabicyclo[11.3.1]heptadeca-1(17),2,11,13,15-pentaene} perchlorate is reported.

446. RUTHENIUM PYRIDINE TETRAFLUOROBORATE
J. L. Templeton. J. American Chemical Society, 15.8.79, 101, 4906-17
A study of the molecular structure and spectroscopic properties of Ru hexatris(pyridine)tetrafluoroborate is reported.

447. RUTHENIUM HYDROETHYLPYRIDINE
B. S. Tovrog et al. J. American Chemical Society, 15.8.79, 101, 5067-69
The oxidation of Ru 2(1'-hydroxyethyl)pyridine has been investigated.

448. RUTHENIUM-EDTA COMPLEXES
C. Creutz et al. J. American Chemical Society, 29.8.79, 101, 5443-44
The complexes $[Ru(NH_3)_3LRu(EDTA)]^+$, $[Ru(EDTA)LRu(EDTA)]^{4-}$, $[Ru(NH_3)_5LRu(NH_3)_5]^{5+}$ and $[Ru(EDTA)LRu(EDTA)]^{3-}$ (L is pyrazine) have been prepared and characterised.

449. IRON AND RUTHENIUM PHOSPHINOBENZOPHENANTHRENE COMPLEXES
R. Holderegger, L. M. Venanzi. Helvetica Chimica Acta, 31.10.79, 62, 2154-67
Five coordinated mononuclear complexes have been prepared from Fe and Ru tricarbonyls and 2,11-bis(diphenylphosphinomethyl)-benzo[C]phenanthrene.

450. RUTHENIUM DIPAPTOACYL DERIVATIVES
W. R. Roper et al. J. Organometallic Chemistry, 11.12.79, 182, C46-48
$Ru(CO)_2(PPh_3)_3$ reacts with methyl Hg iodide to insert AcO instead of CO.

451. RUTHENIUM TRIS(BIPYRIDINE) CHLORIDE
G. Favaro et al. J. Physical Chemistry, 9.8.79, 83, 2129-34
The activity of some aryl ketones as sensitisers for $Ru(bipy)_3Cl_2$ luminescence was investigated.

452. IRIDIUM THIOLATE-BRIDGED PHOSPHINATES AND PHOSPHINES
J. J. Bonnet et al. J. American Chemical Society, 26.9.79, 101, 5940-49
The complexes $\{Ir(H)SBu^t)(CO)PR_3\}_2$ (R is Me, Ph, NMe_2 or OMe) have been prepared and characterised.

453. IRIDIUM COMPLEXES AS HYDROGENATION CATALYSTS
R. Crabtree. Accounts of Chemical Research, September 1979, 12, 331-38
Factors affecting the activity of Ir complexes as catalysts for olefin hydrogenation are reviewed with 30 references.

454. IRIDIUM PHOSPHINE-METAL FORMAMIDINE BRIDGED COMPLEXES
K. Vrieze et al. J. Organometallic Chemistry, 27.11.79, 182, 105-15
Carbonyl Ir chloride phosphine complexes react with Cu and Ag(M) formamidines to give $(Ph_3P)_2(CO)Ir\text{-}M(RNCHNR')$ where R is alkyl and R' is tolyl. These have metal-metal bonding stabilised by the formamidino group.

455. IRIDIUM HYDRIDE CYCLOOCTADIENE COMPLEXES
J. Muller et al. J. Organometallic Chemistry, 20.11.79, 181, 387-98
Complexes of the type IrH(COD)L and L is a cyclodiene, such as 1,3-cyclohexadiene, are prepared by the reaction of $[Ir(COD)Cl]_2$ with iPrMgBr in the presence of the cyclic diene.

456. IRIDIUM CYCLOOCTADIENE PHOSPHINE COMPLEXES
R. H. Crabtree et al. J. Organometallic Chemistry, 13.12.79, 181, 203-12
Complexes $[Ir(COD)L_n]PF_6$, where L is PPh_3, $PMePh_2$ and PMe_2Ph and n is 1 or 2 react with HX to give $\{IrHX_n(COD)L_m\}PF_6$ where n+m are 1 or 2. Intermediates $IrX(CO'D)L_2$ have been directly isolated from the reaction mixture.

457. IRIDIUM-PHENANTHROLINE COMPLEXES
K. W. Hanck et al. J. Physical Chemistry, 4.10.79, 83, 2606-15
The electrochemistry of Ir complexes with phenanthroline or dimethylphenanthroline was investigated.

458. OSMIUM CARBONYL METHYLPHENYLPHOSPHINE
R. D. Adams et al. J. American Chemical Society, 12.9.79, 101, 5862-63
The reaction of CS_2 with $[Os_3H_2(CO)_9L]$ (L is PMe_2Ph) to give $[Os_3(SCH_2)(S)(CO)_8L]$ has been studied.

459. OSMIUM ESTER AMINE COMPLEXES
W. P. Griffith et al. J. Chemical Society, Dalton Trans., 1979, (10), 1607-11
OsO_4Z, where Z is quinuclidine, reacts with monoalkenes, tertiary amines, dienes and alkynes (R) to give complexes $OsO_4(O_4R)(Z)_x$.

460. OSMIUM-DIOL COMPLEX
L. O. Atovmyan et al. Zh. Strukturnoi Khimii, July-August 1979, 20, 754-58
The crystal and molecular structure of $OsO\{Me_2C(O)C(O)Me_2\}_2$ was determined and refined.

461. METAL-PENTENOL COMPLEXES
R. C. Mehrotra et al. Synthesis & Reactivity in Inorganic & Metal-Organic Chemistry, 1979, 9, (5), 439-70
The preparation and some properties of complexes $M\{OCH(Me)CH{=}CHMe\}_n$ and of $Bu_nSn\{OCH(Me)CH{=}CHMe\}_{4-n}$ are reported, where M is Ge, Al, Ti, Nb or Ta.

462. METAL METHANESULPHONATES
F. Charbonnier. Thermochimica Acta, October 1979, 33, 31-39
The preparation and some properties of $Ag(MeSO_3)$ and $M(MeSO_3)_2$ are reported, where M is Cu, Zn, Mn or Cd.

463. ORGANIC LITHIUM, MAGNESIUM, ZINC AND COPPER ADDITION REACTIONS
D. Seebach, W. Langer. Helvetica Chimica Acta, 19.9.79, 62, 1701-9
The enantioselective addition of Li, Mg, Zn and Cu reagents (LiR, where R is methyl, propyl or phenyl, diisopropylamide, dithiophene, trimethylsilyl, etc., BuMgI, Mg dibutyl, $LiCuBu_2$, $LiZnBu_2$ and $BrZnCH_2COOR'$) to carbonyl compounds is enhanced by the chiral cosolvent (+)methoxyamine. pp 1710-22: Further addition reactions with unsaturated aldehydes, ketones, etc., are considered.

464. TRANSITION METAL COMPLEXES OF ALKINYL DITHIOPHOSPHINE ACIDS
W. Kuchen et al. Z. Naturforschung, October 1979, 1398-1402
The preparation and some properties of several complexes of general formula $[(PPh_3)_2Pt(RC{\equiv}C(R')P(S)SMe]$ or $[(RC{\equiv}C(R')PS_2)_2$ or $_3M$ are reported, where M is Cr, Co, Ni or Zn.

465. TRANSITION METAL COMPLEXES WITH PYRROLIDENEIMINO-BENZENE OR -ETHANE SULPHONIC ACID
R. K. Mehta et al. J. fur praktische Chemie, 1979, 321, (4), 691-94
New ligands were synthesised by reaction of pyrrole-2-carboxaldehyde with o-aminobenzene sulphonic acid or 2-aminoethane sulphonic acid. Their complexes with Mn, Fe, Co, Ni, Cu, Zn, Pd, Cd, UO_2 or VO_2 are briefly reported.

466. TRIAZADECANE AND AMINOETHYL BENZENE SEQUESTERING AGENTS
C. J. Carrano et al. J. American Chemical Society, 29.8.79, 101, 5401-04
The use of the ligands 1,5,10-tris(5-sulpho-2,3-dihydroxybenzoyl)triazadecane and 1,3,5-tris(2,3-dihydroxybenzoyl)aminomethyl benzene to remove Fe from a transferrin has been investigated.

467. OPEN CHAIN POLYETHER LIGANDS AND THEIR COMPLEXES
F. Vogtle et al. Angewandte Chemie in English, October 1979, 18, 753-76
A review with 213 references.

468. TRANSITION METAL PORPHYRIN COMPLEXES
R. D. Jones et al. J. Organometallic Chemistry, 13.11.79, 181, 151-58
Infra red stretching values for oxygen bound to Co, Fe and Mo porphyrins are reported. The value for oxygen adducts of tetraphenylporphyrinate Mn confirms that the oxygen moiety is bound in a peroxo-like manner.

469. TRANSITION METAL DICHLOROFERROCENE COMPLEXES
A. G. Osborne et al. J. Organometallic Chemistry, 20.11.79, 181, 425-37
Complexes $[Cl_2FeC_5]_nML$, where ML is $Fe(CO)_2Cp$, $Au(PPh_3)$, $Mn(CO)_5$ and $Ir(CO)(PPh_3)_2$ when n is 1 and $TiCp_2$ when n is 2, have been prepared from a salt elimination reaction between 1,1-dichloro-2-lithioferrocene and the transition metal halide complex.

470. TRANSITION METAL CHELATES
EP 5505. BASF. A:9.5.79: P:28.11.79: C:12.5.78 (DE) as 20,732
Heavy metals may be extracted from aqueous effluents by treatment with an open-cell polyurethane foam synthesised to contain a sodium or calcium chelate of, e.g., an amine, sulphur compound, β-diketone or EDTA.

471. TRANSITION METAL PHOSPHORUS TRISULPHIDE METALLOCENE COMPLEXES
R. Clement et al. J. Chemical Society, Dalton Trans., 1979, (10), 1566-68

Lamellar compounds MPC_3, where M is Mn, Zn, Fe and Ni react with metallocenes $CoCp_2$ and $Cr(C_6H_6)$ forming intercalcates $MPS_3\{Cr(C_6H_6)_2\}_x$ and $MPS_3\{CoCp_2\}_x$. $MnPS_3$ intercalates $Cr(C_6H_6)_2$, together with benzene used as a solvent forming $MnPS_3\{Cr(C_6H_6)_2\}_{0.24}(C_6H_6)_{0.10}$.

472. TRANSITION METAL MACROCYCLIC SCHIFF BASE COMPLEXES
S. M. Nelson et al. J. Chemical Society, Dalton Trans., 1979, (10), 1477-81

Preparation of mononuclear complexes $(ML_2)X_n$, where M is Fe, Co and Ni and L is a 30-membered potentially decadentate, macrocyclic Schiff base ligand, from the Pb binuclear complex is described.

473. TRANSITION METAL 'CAPPED' SCHIFF BASE COMPLEXES
L. Martin et al. J. Chemical Society, Dalton Trans., 1979, (10), 1497-1502

Synthesis of sterically hindered N_2O_2 and N_4 ligands in which a quadridentate Schiff base is 'capped' by condensation of salicylaldehyde or pyrrole-2-carbaldehyde with bis(aminonaphthyl) n-alkyl diethers is described. Representative complexes with Fe, Co, Ni, Cu and Zn ions have been prepared and characterised.

474. TRANSITION METAL METHYL COMPLEXES
R. F. Jordan et al. J. American Chemical Society, 15.8.79, 101, 4853-58

A study of 13C nmr relaxation mechanisms in cis-$[Os(CO)_4Me_2]$, $[Mo(CO)_3CpMe]$, $[FeCp(CO)_2Me]$, $[ZrCp_2Me_2]$ and $[AuPPh_3Me]$ is reported.

475. TRANSITION METAL AROMATIC CARBOXYLATES
GB 2,021,172. Fuji Photo. A:12.4.79: P:28.11.79: C:14.4.78 (JP) as 43,867

A colour developing coating for a pressure sensitive recording sheet contains, in a suitable binder, (a) a Zn, Sn, Al, Mg or Ca aromatic carboxylate, e.g. Zn 3,5-di-tert-butyl salicylate, (b) a clay mineral and (c) a water soluble Zn salt, e.g. $ZnCl_2$.

476. CHEMICAL BOND IN METAL COMPLEXES
R. Mason, J. Varghese. J. Organometallic Chemistry, 13.11.79, 181, 99-104

Diffraction methods represent the most direct approach to studying the electron distribution (and hence the nature of the bond) in transition metal complexes.

477. ZINC, COPPER, COBALT AND NICKEL COMPLEXES WITH LEPIDINE OR LUTIDINE
B. K. Mohapatra et al. Indian J. Chemistry, August 1978, 18A, 186-87

The preparation, isolation and characterisation of complexes $(LH)_2(MX_4)$ and $(LH)(MX_2X'_2)$ are reported, where L is lepidine or lutidine, X and X' are Cl or Br and M is Zn, Cu, Co or Ni.

478. COBALT, COPPER, NICKEL AND VANADIUM COMPLEXES WITH SOME NEW LIGANDS
E. S. Mikhailyuk et al. Izvestiya AN Kazakhskoi SSR, 1979, (4), 33-41 & 70-71

Some new potential ligands were synthesised by reaction of (a) a glycidyl ether of pyrocatechol, resorcinol or an aminophenol with (b) hexamethylenediamine, polyethylenepolyamine or polyxylenepolyamine. The chelating properties of the products towards Cu, Co, Ni and V were investigated.

479. TRANSITION METAL COMPLEXES WITH AMINOALKYL PHOSPHONIC ACIDS
W. Szczepaniak et al. Polish J. Chemistry, 1979, 53, (9), 1715-22

The chelating properties of isomeric N(picolylamino)isopropyl phosphonic acids towards Zn, Cd, Ni, Co, Pb, Cu, Be, VO, UO_2, La, Sm, Dy, Al and Fe were investigated.

480. TRANSITION METAL COMPLEXES AS HYDROGENATION CATALYSTS
E. L. Muetterties et al. Accounts of Chemical Research, September 1979, 12, 324-31

Factors affecting the activity of transition metal complexes as catalysts for the hydrogenation of aromatic hydrocarbons are reviewed with 37 references.

481. DIVALENT METAL IMINODIMETHYL PHOSPHONATES
B. V. Zhadanov et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1614-19

The preparation and some properties of complexes ML are reported, where L is iminodimethylphosphonate and M is Co, Cu, Ni, Ca, Mg or Mn.

482. DIVALENT METAL COMPLEXES WITH DIPHENYLACETOHYDROXAMIC ACID
T. N. Rao et al. Indian J. Chemistry, February 1979, 17A, 199-201

Stability constants and some thermodynamic functions were determined for Cu, Ni, Co, Mn, Zn and Cd complexes with 2,2-diphenylacetohydroxamic acid.

483. COPPER, ZINC, COBALT AND NICKEL POLYAMINE COMPLEXES
S. K. Srivastava. Indian J. Chemistry, February 1979, 17A, 193-94

The preparation and some properties of Cu, Zn, Co or Ni 1:1 complexes with N-(2-aminoethyl)propane-1,3-diamine are reported.

484. TRANSITION METAL COMPLEXES WITH HETEROCYCLIC AZO DYES
R. P. Singh et al. Indian J. Chemistry, January 1979, 17A, 104-05

Stability constants were determined for complexes of Mn, Fe, Co, Ni, Cu or Zn with 1-(2-quinolylazo)- or 1-(2-lepidylazo)-2-acenaphthylenol.

485. COPPER, CHROMIUM AND VANADIUM COMPLEXES WITH THIOOROTIC ACID
U. Agarwala et al. Indian J. Chemistry, January 1979, 17A, 74-76

The preparation and some properties of CrL_3, $(VO)(L)(NH_3)$ and five CuL mixed-ligand complexes are reported, where L is 2-thio-orotic acid. Tentative structures have been assigned.

486. TRANSITION METAL (PYRIDINYL)TETRAZOLES
N. S. Gill et al. Australian J. Chemistry, August 1979, 32, 1669-78

Mn, Fe, Co, Cu, Zn, Ni and Ag complexes of 5-(pyridino-2-yl)tetrazole and its methyl-substituted derivatives have been prepared and characterised.

487. TRANSITION METAL ACETYLACETONATES
A. K. Gregson et al. Australian J. Chemistry, July 1979, 32, 1407-14

The temperature dependence of the Me and CH isotropic shifts in V, Ru, Mn and Fe acetylacetonates has been studied.

488. TRANSITION METAL BENZIMIDAZOLYLMETHYL)ETHANEDIAMINE
H. M. J. Hendriks et al. Rec. Travaux Chimiques Pays Bas, September 1979, 98, 499-500

Cu, Co, Ni and Cd complexes of tetrakis(2-benzimidazolylmethyl)-1,2-ethanediamine have been prepared and characterised.

489. TRANSITION METAL PORPHYRINS
K. M. Smith et al. J. American Chemical Society, 26.9.79, 101, 5953-61

A series of Mg, Zn, Ni and Cu octaalkylporphyrins, meso-substituted by nitrite, chloride, pyridine, imidazole, cyanide, PPh_3, thiocyanate, acetate and azide groups, has been prepared and characterised.

490. TRANSITIONAL METAL AMINOBENZENETHIOL STABILISERS
GB 2,022,119. Fuji. A:17.4.79: P:12.12.79: C:14.4.78 (JP) as 43,866

Light stabilisers for multilayered photographic materials are Cu, Co, Ni, Pd or Pt chelates of amino benzenethiols.

491. GOLD BUTYLTHIOCARBAMATE ADDUCTS WITH BENZENE AND OLEFINS
F. Th. H. M. Wiynhoven et al. Rec Travaux Chimiques Pays Bas, September 1979, 98, 492-95

$(AuBr_2L)$ (L is di-n-butyldithiocarbamate) forms 2:1 solid adducts with trans-stilbene, trans-azobenzene, trans,trans-1,4-diphenyl-1,3-butadiene, tolane and dibenzenyl.

492. GOLD AND PLATINUM GROUP METAL COMPLEXES WITH HETEROCYCLIC AMINES
N. Ahmad et al. Indian J. Chemistry, March 1979, 17A, 305-07

The preparation and some properties of Au, Pd, Pt, Ru and Rh complexes with o-toluidine, o-dianisidine or 2,2'-biquinoline are reported.

493. GOLD YLIDE COMPLEXES
H. Schmidbaur et al. Z. Naturforschung, October 1979, 34B, 1347-51

The preparation and some properties of complexes $(AuL)_2$ and $(Au_2L')_n$ are reported, where L is cyclopentyl(methyl) phosphonium bis methylide and L' is 1,6-bis(methylphosphonium bis methylido)hexyl.

494. SILVER METHYLTHYMINE
F. Cuay et al. J. American Chemical Society, 10.10.79, 101, 6260-63

The crystal structure of Ag methylthymine is reported.

495. SILVER POLY(PYRAZOLYL) BORATES
O. M. Abu Salah et al. Australian J. Chemistry, July 1979, 32, 1613-19

The complexes $AgL(R_nBH_{4-n})$ (L is PPh_3, $P(C_6H_4Me)_3$, $P(OMe)_3$, $P(OPh)_3$, $AsPh_3$, $SbPh_3$, $o\text{-}C_6H_4(AsMe_2)_2$ or Bu^tNC, R_nBH_{4-n} is $HB(pz)_3$, $HB(Me_2pz)_3$ or $B(pz)_4$, pz is pyrazolyl) have been prepared and characterised.

496. SILVER GUANIDE COMPLEX
R. N. Banerjee et al. Indian J. Chemistry, March 1979, 17A, 246-49

The kinetics and mechanism of decomposition of the ethylene bis (guanide) Ag ion in acidic media were investigated.

497. SILVER, CADMIUM AND ZINC AMINE AND PHOSPHINE COMPLEXES
S. Ahrland et al. J. Organometallic Chemistry, 13.11.79, 181, 17-24

Stabilities of Ag, Cd and Zn complexes with tri-n-butylamine and tri-n-butyl phosphine have been determined in dimethyl sulphoxide.

498. SILVER BENZOATES
U. N. Dash et al. Thermochimica Acta, November 1979, 34, 171-76

Standard electrode potentials were determined for Ag salts of substituted benzoic acids.

499. SILVER BEHENATE OR STEARATE OXIDISING AGENT
US 4,173,482. Asahi KKKK. A:8.3.78: P:6.11.79: C:16.3.77 (JP) as 28088/89 and 14.6.77 as 69,424

A dry image-forming material contains (a) a non-photosensitive organic Ag salt oxidising agent, e.g. Ag behenate or stearate, (b) a reducing agent for a Ag ion and (c) a halogen molecule and optionally (d) a Co and/or Ni compound, e.g. Co or Ni acetylacetonate.

500. SILVER IMIDAZOLINE-THIONE

US 4,168,980. Eastman Kodak. A:19.8.77 as 825,899: P:25.9.79

A heat developable photographic material contains a reactive association of a photosensitive Ag halide and an image-forming combination of a Ag imidazoline-2-thione with an organic Ag halide developing agent, together with a binder.

501. SILVER HETEROCYCLIC THIONES

GB 2,022,277. Eastman Kodak. A:30.5.79: P:12.12.79: C:30.5.78 (US) as 912,168

An image-forming combination for a silver halide photothermographic material is the Ag salt of a heterocyclic thione or a 1,2,4-mercaptotriazole, together with an organic reducing agent.

502. SILVER BEHENATE

GB 1,557,654. Fuji. A:9.12.77: P:12.12.79: C:17.12.76 (JP) as 151,634

Ag behenate is used in thermally developable light-sensitive materials.

503. SILVER IMIDE COMPLEXES IN CATALYST PRODUCTION

EP 5388. Ugine Kuhlmann. A:11.4.79: P:14.11.79: C:28.4.78 (FR) as 12,628 and 27.7.78 as 22,214

Catalysts for the production of ethylene oxide are obtained by the thermal decomposition of Ag complexes with cyclic iminoethers or alkyloxyimines, deposited on a refractory support.

504. COPPER AND SILVER ALKANE- AND ARENEMONOTHIOLATES

G. A. Bowmaker et al. Australian J. Chemistry, July 1979, 32, 1443-52

The complexes $[Cu_2(SMe)_3][NMe_4]$, $[Ag_5(SBu^t)_6][NEt_4]$, $[Cu_5(SBu^t)_6][NEt_4]$, $\{Cu_5(SPh)_7\}(NMe_4)_2$ and $^3\{Cu_5(SPh)_7\}(NEt_4)_2$ have been prepared and characterised.

505. COPPER PHENANTHROLINE-PHOSPHINE

M. T. Buckner et al. J. American Chemical Society, 12.9.79, 101, 5846-48

Time resolved studies of multiple emissions from the system $[CuL(PPh_3)_3]^+$ (L is 1,10-phenanthroline) are reported.

506. COPPER BUTYL PHOSPHINE TETRAMER

H. R. Alloock et al. J. American Chemical Society, 10.10.79, 101, 6221-29

$(CuPBu_3I)_4$ is a catalyst for the formation of hydridocyclotriphosphazenes.

507. COPPER BIS(ACETYLACETONATE)

K. Day. Indian J. Chemistry, February 1979, 17A, 137-141

The reactions of $Cu(acac)_2$ with some amines, semicarbazides and salicylaldimines were investigated.

508. COPPER-BROMOPYRIDINE COMPLEX

G. Basu. Indian J. Chemistry, February 1979, 17A, 173

The polarised single crystal spectrum of dichlorobis(2-bromopyridine)Cu was studied.

509. COPPER OXADIAZOLES AND THIADIAZOLES

N. B. Singh et al. Indian J. Chemistry, February 1979, 17A, 191-93

The preparation, isolation and characterisation of 10 Cu complexes with 2-amino-5-phenyl-1,3,4-oxa- or thia-diazole are reported.

510. COPPER-ALDEHYDE AND -SCHIFF BASE COMPLEXES
C. Natarajan et al. Indian J. Chemistry, February 1979, 17A, 195-96
(Ethylacetoacetato)(salicylaldehydato)Cu was prepared and reacted with NH_3, $MeNH_2$, $EtNH_2$, $BuNH_2$ or ethylenediamine to obtain the corresponding Schiff base complex.

511. COPPER-SCHIFF BASE COMPLEXES
N. Saha et al. J. Indian Chemical Society, December 1978, 55, 1311-12
The preparation and some properties of complexes CuL are reported, where L is a new tridentate Schiff base derived from diacetylmonoxime and (a) salicylhydrazide, (b) aminoguanidine or (c) cyanoacetyl hydrazide.

512. COPPER-DIKETONE AND -KETIMINE COMPLEXES
Yu. V. Chumachenko et al. Koordinatsionnaya Khimiya, 1979, 5, (11). 1625-28
The thermodynamics of sublimation of some Cu-diketone and -ketimine complexes was investigated.

513. COPPER-ETHANOLAMINE-ALCOHOL COMPLEXES
E. A. Aksenova et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1629-32
The formation of mixed-ligand complexes by reaction of Cu nitrate with monoethanolamine in aqueous media containing ethylene glycol or glycerol was investigated.

514. COPPER-AMIDONICOTINATE-FORMATE COMPLEX
A. S. Antsyshkina et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1716-22
The crystal and molecular structure of $Cu(HCOO)_2(L)_2$ hydrate was determined and refined, where L is amidonicotinate.

515. COPPER NITROSOBARBITURATES
Y. Vandewalle et al. Comptes Rendus, 1.10.79, 289, 199-202
Complexes CuLL' are generally more stable than CuL_2 or CuL'_2, where L and L' are each a nitrosobarbituric (violuric) acid.

516. COPPER AND NICKEL CARBODITHIOATES
F. G. Herring et al. Canadian J. Chemistry, 15.9.79, 57, 2379-85
The crystal and molecular structure of Ni bis(morpholine-N-carbodithioate) was determined and refined. Epr spectra of CuL_2 were measured, where L is morpholine- or pyrrolidine-N-carbodithioate.

517. COPPER COMPLEXES WITH ETHYLENEBIS (N-PHENYLTHIOUREA)
K. C. Satpathy et al. Indian J. Chemistry, March 1979, 17A, 303-04
The preparation and some properties of Cu complexes with $(-CH_2NHC(S)NHPh)_2$ are reported.

518. COPPER PHTHALATE COMPLEX
G. Basu. Indian J. Chemistry, March 1979, 17A, 287-89
Polarised single-crystal spectra of two faces of bis(hydrogen-o-phthalato) Cu are reported.

519. COPPER-OXAZOLE COMPLEXES
D. Szlompek-Nesteruk. Polish J. Chemistry, 1979, 53, (8), 1741-50
The preparation and some properties of Cu complexes with six substituted oxazoles are reported.

520. COPPER-KETONE COMPLEXES
M. A. S. Goher et al. Polish J. Chemistry, 1979, 53, (8), 1723-28
Cu forms 1:1, 1:2, 1:3 and/or 1:4 complexes with methyl 4-pyridyl ketone according to the anion present (halide, cyanide, thiocyanate or perchlorate) The stereochemistry of the complexes is discussed.

521. COPPER BIS-PYRAZINE PERCHLORATE
D. N. Henrickson et al. Inorganic Chemistry, October 1979, 18, 2679-82
Crystal structure and magnetic properties of $CuL_2(ClO_4)_2$, where L is pyrazine, are reported.

522. COPPER-THIOCARBOHYDRAZONE COMPLEXES
C. G. Macarovici et al. Revue Roumaine de Chimie, September-October 1979 24, 1291-98
The preparation and some properties of complexes $CuLCl_2$ are reported, where L is a thiocarbohydrazone of salicylaldehyde, nicotinaldehyde or vanillin

523. COPPER-THIOAMIDE COMPLEXES
D. Negoiu et al. Revue Roumaine de Chimie, August 1979, 24, 1129-36
The preparation and some properties of nino complexes of general formula $(CuCl)_2L_2$ are reported, where L is an aryl thioacetamide, vinylene thioamide or dibenzofuran thioamide.

524. COPPER-ACETOHYDRAZIDES
N. Saha et al. Indian J. Chemistry, August 1979, 18A, 154-56
The preparation, isolation and characterisation of $CuLX_2$ hydrates are reported, where L is α-(3,5-dimethyl-1-pyrazolyl)-acetohydrazide and X is Cl, Br, SCN, NO_3, ClO_4 or BF_4.

525. COPPER BENZOATES
C. P. Srivastava et al. Indian J. Chemistry, August 1979, 18A, 147-50
The ir spectra of Cu chloro-, nitro- and methyl-benzoates were measured

526. COPPER SCHIFF BASE COMPLEXES
A. Pasini et al. Inorganic Chemistry, October 1979, 18, 2825-35
Cu complexes with tridentate Schiff bases derived from the condensation of (hydroxymethylene) camphor and (hydroxymethylene) menthane and a series of (S) and (R)-amino acids have been synthesised.

527. LIGAND REMOVAL FROM COPPER TRIPHENYL PHOSPHINE BORANES
S. G. Shore et al. Inorganic Chemistry, October 1979, 18, 2813-16
Treatment of bis(triphenyl phosphine) Cu boranes with B_2H_6 results in ligand removal through formation of PPh_3BH_3.

528. COPPER MACROCYCLIC COMPLEXES
R. R. Gagni et al. Inorganic Chemistry, October 1979, 18, 2767-74
Equilibrium constants for the binding of a monodentate ligand, e g isocyanides, phosphites, CO, phosphines and amines to several four-co-ordinate Cu macrocyclic ligand complexes, e.g. (tetramethyl tetraazocyclotetradeca-tetraene) Cu diperchlorate, have been obtained.

529. COPPER DIETHYLETHYLENEDIAMINE COMPLEXES
I. Grenthe et al. Inorganic Chemistry, October 1979, 18, 2687-92
The crystal structures of red and blue-violet forms of the thermochromic bis(N,N-diethylethylenediamine)$Cu(ClO_4)_2$ and of the non-thermochromic violet bis(N-ethyl) complex have been characterised.

530. COPPER QUINONE DIBENZIMIDE COMPLEXES
M. H. Zaghal et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1490-91
Reaction of p-quinone dibenzimide (L) with $CuBr_2$ produces an unstable $CuBr_2$.L complex.

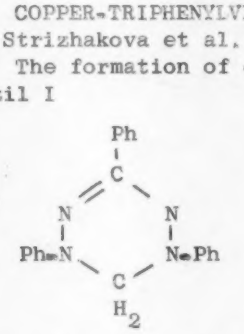
531. COPPER EXTRACTION AND SEPARATION FROM ZINC BY PYRIDONE DERIVATIVES
A. Cojmerac et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1475-77
Extraction of Cu(II) from HCl and HNO_3 solutions by hydroxy-methyl-phenyl pyridone and hydroxy-methyl-(4-tolyl)-pyridone dissolved in chloroform is described.

532. COPPER TETRA-AZA MACROCYCLE COMPLEXES
P. Pasletti et al. J. Chemical Society, Dalton Trans., 1979, (10), 1581-90
A calorimetric study of the enthalpy of formation of Cu complexes with three tetra-aza macrocyclic ligands of different ring size has been carried out.

533. COPPER-BENZALDEHYDE OXIME COMPLEX
D. Stepniak-Biniakiewicz et al. J. Chemical Technology Biotechnology, November 1979, 29, 686-93
The formation of a 1:2 complex during extraction of Cu from aqueous sulphate solutions with 5-hydroxy-5-t-butyl benzaldehyde oxime was demonstrated.

534. COPPER-TRIBUTYLPHOSPHATE COMPLEXES
A. A. Vashman et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3009-15
Some properties of complexes $Cu(NO_3)_2.4L$ and $Cu(L'_2).L$, formed by extraction of $Cu(NO_3)_2$ or $Cu(L'_2)$ from aqueous solution by the alkyl phosphate were investigated, where L is tributylphosphate and L' is thenoyltrifluoroacetonate.

535. COPPER-TRIPHENYLVERDAZIL COMPLEXES
N. G. Strizhakova et al. Ukrainskii Khimicheskii Zh., 1979, 45, (11), 1039-41
The formation of complexes $CuLX_2$ was investigated, where L is triphenyl-verdazil I



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536. COPPER-TERPYRIDINE COMPLEXES
E. Rizzamelli et al. Transition Metal Chemistry, October 1979, 4, 328-32
Some thermodynamic properties of Cu terpy and its hydroxides were determined.

537. COPPER-DIMETHYLPYRIDINE COMPLEX
J. Reedijk et al. Transition Metal Chemistry, October 1979, 4, 305-07
The crystal and molecular structure of catena-di-μ-bromobis(3,5-dimethyl-pyridine) copper $CuBr_2(Me_2C_5H_3N)_2$ was determined and refined.

538. COPPER-SCHIFF BASE COMPLEXES
A. Syamal et al. Transition Metal Chemistry, October 1979, 4, 298-300
The preparation and some properties of seven Cu-Schiff base complexes are reported.

539. COPPER COMPLEXES WITH SULPHANILAMIDE DERIVATIVES
A. Bult et al. Transition Metal Chemistry, October 1979, 4, 285-88
The preparation and some properties of complexes CuL_2 and CuL_2Y_2 or 3 are reported, where L is sulphadiazine, sulphadimethoxime, sulphadimidine sulphamerazine, sulphamethoxydiazine, sulphamethoxypyridazine, sulphapyridine sulphathiazole or sulphisomidine and Y is ammonia or pyridine.

540. COPPER-DIOXANE-DICHLOROPHENOXYACETATE COMPLEX
W. Jahnig et al. J. fur praktische Chemie, 1979, 321, (4), 549-54
The crystal and molecular structure of $Cu_2(2,4\text{-D})_4 \cdot 5$ dioxane was determined and refined.

541. COPPER COMPLEX OF TETRAKIS(HYDROXPROPYL) ETHYLENEDIAMINE
O. Orama et al. Finnish Chemical Letters, 1979, (5), 136-39
The crystal and molecular structure of $Cu(L)ClO_4$ hydrate was determined and refined, where L is N,N,N',N'-tetrakis(hydroxypropyl)ethylenediamine.

542. COPPER-AMINE-NONYLCATECHOL COMPLEXES
D. G. Brown et al. Z. Naturforschung, October 1979, 34B, 1408-12
The preparation and some properties of complexes CuLL' are reported where L is nonylcatechol and L' is phenanthroline, bipyridine, ethylenediamine or tetramethyl-ethylenediamine.

543. COPPER VINYL-ACETYLENE ADDITION
A. Alexakis et al. Synthesis, October 1979, 826-28
LiCu dialkenyl compounds react with allylic and benzylic halides to give high yields of Z-olefins.

544. COPPER ALKYL ALKANEPHOSPHONATES
A. Breque et al. Synthesis, October 1979, 832-34
Cu salts of alkane phosphonic acid esters react with acetylenic derivatives to replace Cu by unsaturated groups giving alkadiene phosphonates.

545. COPPER ACETYLACETONATE AND PHTHALOCYANINE CATALYSTS
P. Svoronos, V. Horak. Synthesis, August 1979, 596-98
Cu powder, acetylacetonate and phthalocyanine catalyse the production of sulphimines from sulphides and tosyl azide.

546. COPPER-ACETYLENIC GRIGNARD REAGENT
G. H. Posner et al. J. Organic Chemistry, 12.10.79, 44, 3661-65
The tetracyclic carbon skeleton of steroids may be produced in much higher yields using a Mg cuprate instead of a Li cuprate. The reagent is formed from the 6-methoxynaphthyl Grignard and Cu pentenyl and reacted with methyl cyclopentenone.

547. CUPRATE GRIGNARD REAGENT
V. Calo et al. Synthesis, November 1979, 885-87
$(RCuX)MgBr$, where R is $XMgO(CH_2)_n$-, reacts with allyl ethers of benzothiazole to give an unsaturated alcohol. Typically the Grignard is produced from chlorobutanol (n = 4).

548. COPPER- AND NICKEL-DIAZATHIA COMPLEXES
G. G. Herman et al. Thermochimica Acta, September 1979, 32, 27-31
Enthalpies of formation were determined for Cu and Ni complexes with 1,7-diaza-4-thia-heptane and 1,8-diaza-4-thia-octane.

549. COPPER COMPLEXES WITH GLYCYL-METHIONINE
P. Abello et al. J. Chimie Physique, June 1979 76, 602-10
The formation of complexes between $Cu(NO_3)_2$ and glycyl-methionine was studied potentiometrically

550. COPPER DIMETHYLPHENYLANTHRANILATE
K. B. Yatsimirskii et al. Doklady AN SSSR, 1979, 247, (5), 1204-07
The crystal and molecular structure CuL_2.DMF was determined, where L is 2,3-dimethylphenyl-anthranilic acid.

551. METAL HYDROXYIMINE COMPLEXES
DD 137,530. Akademie der Wissenschaften der DDR. A:5.7.78 as 206 520: P:12.9.79
Salts of metals (copper in the only example) are extracted from their aqueous solutions by a bis-α-hydroxybenzophenone alkane diimine.

552. CUPROUS THIOETHER CATALYSTS
GB 2,022,089. Ugine Kuhlmann. A:29.5.79: P:12.12.79: C:31.5.78 (FR) as 16,184
A catalyst for use in the preparation of cyanoazo dyestuffs is a molecular combination complex of a Cu(I) halide and a thioether Z-R-S-R'-H (R and R' are each 1-8C alkylene, Z is H or OH).

553. COPPER OXIMES
US 4,173,616. Shell Oil. A:7.3.78 as 884,337: P:6.11.79
Cu values are removed from acidic aqueous solutions using as extractant a mixture of a water-immiscible organic solvent, one or more hydroxyoximes and one or more α,β-dioximes of the anti-configuration.

554. COPPER AND ZINC SCHIFF-BASE COMPLEXES
K. S. Rajan et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1513-19
Cu and Zn chelates of Schiff-bases prepared from biogenic amines (phenylethylamine, tyramine, dopamine, octopamine and norepinephrine) and salicylaldehyde were prepared and investigated in a metal chelation approach to the characterisation of biogenic amines.

555. ZINC, CADMIUM- AND MERCURY-PYRIDYLACETAMIDE COMPLEXES
C. Airoldi et al. Thermochimica Acta, October 1979, 33, 371-75
Standard enthalpies of formation were determined for some dihalo-Zn, Cd and Hg complexes with N-(2-pyridyl)acetamide.

556. ZINC DIKETONATES AND THIOKETONATES AND THEIR ADDUCTS
C. N. Rao et al. Indian J. Chemistry, February 1979, 17A, 154-56
Complex formation during extraction of Zn from aqueous media by benzoyl- or thiobenzoyl-trifluoroacetone in the presence or absence of pyridine, picolines, quinoline, tributyl phosphate or trioctylphosphine oxide was investigated.

557. ZINC-HYDROXYPROLINE COMPLEXES
J. N. Gaur et al. Indian J. Chemistry, February 1979, 17A, 202-03
The complexing of Zn with hydroxyproline was investigated polarographically.

558 ZINC SODIUM SULPHO MERCAPTOQUINOLINATE TRIHYDRATE

A. D. Ozola et al. Izvestiya AN Latviskoi SSR, 1979 (5) 535-36

The crystal structure of $Zn(LNa)_2$ trihydrate was determined where L is 5-sulpho-3-mercapto quinolinate.

559 ZINC-DITHIOL COMPLEXES

N. Muresan et al. Revue Roumaine de Chimie, August 1979, 24, 1123-28

The preparation and some properties of complexes $L_2(ZnL'_2)$ are reported where L is choline or Et_4N and L' is 6-nitro- or 6,7-dinitro-quinoxaline dithiol or dithiobenzoquinoxaline dione.

560 ZINC DICARBINOLAMINE COMPLEX

P. A. Tasker et al. Inorganic Chemistry, October 1979, 18, 2920-21

A Zn complex of dicarbinolamine appears to be an intermediate in the synthesis of a macrocyclic complex from a pyridine diketone and a dipyridine hydrazine.

561 ZINC ACETATE CATALYST

G. M. Shubyakovskii et al. Zh. Prikladnoi Khimii, October 1979, 52 2319-22

The formation of vinyl acrylate or methacrylate by vapour phase reaction of acetylene with (meth)acrylic acid is catalysed by $Zn(OAc)_2$.

562 ZINC DIISOBUTYL DITHIOCARBAMATE INITIATORS

J. Katrera, S. K. Iranov. J. Polymer Science (Polymer Chem), September 1979, 17, 2707-18

The initiation of the autoxidation of tetralin and cumene and the decomposition of tetralin by this Zn dithiocarbamate has been studied.

563 ZINC SALICYLATE

P. S. Bassi et al. Thermochimica Acta, November 1979, 34, 183-88

Thermal decomposition reactions of Zn salicylate dihydrate were studied

564 ZINC ACETATE CATALYST

US 4,169,109. International Flavour & Fragrances. A:10.8.78 as 932,649: P 25.9.79

Unsaturated ketones are prepared by the reaction of an aldehyde and a ketone in the presence of Zn acetate or its dihydrate.

565 ZINC CHLORO-BUTYLTHIOLCARBAMATE

US 4,171,321. Montedison. A:31.3.78: P:16.10.79: C:1.4.77 (IT) as 22,010

The $ZnCl_2$ adduct of benzyl-N,N-di-sec.butylthiolcarbamate is a catalyst for the preparation of benzyl-N,N-di-sec.butylthiolcarbamate from carbamoyl chloride and benzyl mercaptan.

566 ZINC ACRYLATE OR STEARATE ADDITIVES FOR RECORDING MATERIALS

US 4,173,677. Sekisue KKKK. A:17.6.77: P:6.11.79: C:21.6.76 (JP) as 73 488 and 10.5.77 as 53,899

An electrothermosensitive recording material has a conductive recording layer which contains a zinc compound, e.g. Zn acrylate or stearate.

567 CADMIUM THIOCYANATE DICARBOXYLIC ACID COMPLEXES

R. A. Bhobe et al. Indian J. Chemistry, March 1979, 17A, 311-13

Stability constants were determined for $Cd(SCN)_{1 \text{ or } 2}$ complexes with maleic, itaconic or adipic acid.

568. CADMIUM-GLYCINE COMPLEXES
S. L. Jain et al. Indian J. Chemistry, August 1979, 18A, 133-35
The polarographic behaviour of Cd single- and mixed-ligand complexes with glycine and bis(2-hydroxyethyl) glycine was investigated.

569. CADMIUM DIMETHYL
P. I. Kuznetsov et al. Doklady AN SSSR, 1979, 248, (4), 879-82
The deposition of cadmium sulphide films from mixtures of methyl thioether and $CdMe_2$ was investigated.

570. MERCURY TRICYCLOHEXYLPHOSPHINE COMPLEXES
E. C. Alyea et al. J. Chemical Research, November 1979, 4101-84
The crystal and molecular structures of complexes $Hg(PCx_3)_2Y_2$ were determined and refined, where Y is ClO_4 or OAc.

571. MERCURY-TRIPHENYLPHOSPHINE COMPLEX
A. L. Beauchamp et al. Canadian J. Chemistry, 1.10.79, 57, 2555-59
The crystal and molecular structure of the β-form of dithiocyanato (triphenylphosphine) mercury $Hg(SCN)_2(PPh_3)$ was determined and refined.

572. MERCURY-DIAZOAMINOBENZENE COMPLEX
A. F. Danet et al. Revue Roumaine de Chimie, August 1979, 24, 1229-35
Factors affecting the spectrophotometric determination of Hg as its complex with diazoaminobenzene were investigated.

573. MERCURY COMPLEXES WITH BIPYRIDINE OR BIPYRIDINE DIOXIDE
I. S. Ahuja et al. Indian J. Chemistry, August 1979, 18A, 188-89
The preparation, isolation and characterisation of complexes $Hg(bipy)X_2$ and $Hg(bipy\text{-}dioxide)X_4$ are reported, where X is Cl, Br, CN or SCN.

574. MERCURY BRIDGED NIDO-CARBORANES
R. N. Grimes et al. Inorganic Chemistry, October 1979, 18, 2886-91
The bis(carboranyl) Hg complex $2,3\text{-}Me_2C_2B_4H_5$ prepared by the reaction of the nido-carborane anion with anhydrous $HgCl_2$ in THF forms $5,5'\text{-}(Me_2C_2B_4H_5)_2$ upon heating. Cleavage and oxidative addition of benzene produces the air stable complex $4\text{-}PhMe_2C_2B_4H$.

575. MERCURY ARENE COMPLEXES
P. A. Dean et al. J. Organometallic Chemistry, 13.11.79, 18, 1-15
Arene complexes of the type $Hg(SbF_6)_2\text{-arene-}SO_2$, where arene is benzene, toluene, xylene, durene, naphthalene, phenanthrene and biphenyl have been isolated from the appropriate arene and a strong acid salt of mercury.

576. MERCURY NUCLEOSIDE COMPLEXES
P. Peringer. Z. Naturforschung, October 1979, 34B, 1459-60
The preparation and some properties of complexes PhHgL are reported, where L is guanosine, inosine, thymidine or uridine.

577. HALOALKYL MERCURY COMPOUND DECOMPOSITION
M. A. Ray et al. Synthesis, November 1979, 893-96
The thermal decomposition of monohaloalkyl Hg compounds such as chloromethyl-Hg-methoxyphenylethyl is a useful route to acetals.

578. DEMERCURATION OF ORGANIC MERCURY COMPOUND

A. Iattes et al. Synthesis, November 1979, 891-92

Intramolecular solvomercuration is a convenient method for producing heterocyclic Hg compounds. The heterocyclic group may be retained when cleavage of HgX is achieved using a base in the presence of a phase transfer catalyst.

579. MERCURY-TETRAMETHYLDIPHOSPHANE COMPLEX

F. Seel et al. Z. anorganische Chemie, September 1979, 456, 217-21

The preparation and some properties of $HgCl_2(Me_2PPMe_2)$ are reported.

580. MERCURY TRIFLUOROACETATE ADDUCTS

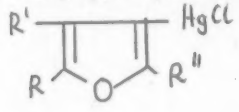
V. I. Boev et al. Zh. Obshchei Khimii, November 1979, 49, 2505-08

The preparation and some properties of complexes $(CF_3COO)_2Hg\ L$ are reported, where L is Ph_3P, Et_3N, Me_2S, Me_2SO or dioxane.

581. MERCURY-FURANE COMPLEXES

S. Vikhert et al. Zh. Obshchei Khimii, November 1979, 49, 2499-2504

The preparation and some properties of the 3-chloromercurifurans



are reported, where R and R' are each Me, pentyl, heptyl, $(CH_2)_4$, $(CH_2)_5$ or $(CH_2)_{10}$ and R'' is Me, Bu, C_6H_4Cl or Ph.

582. MERCURY PHOSPHONATE MIXED LIGAND COMPLEXES

M. A. Kazankova et al. Zh. Obshchei Khimii, November 1979, 49, 2414-18

The preparation and some properties of mercury α-alkoxyalkylene diisopropyl phosphonates $(iPrO)_2P(O)C(OR')=C(R)HgCl$ and $Hg[C(R)=C(OR')P(O)(iPrO)_2]_2$ are reported, where R is H, Me, Et or iPr and R' is Me, Et or Bu.

583. MERCURY-DIPHENYLTRIAZINE COMPLEX

A. N. Nesmeyanov et al. Doklady AN SSSR, 1979, 247, (5), 1154-58

The nmr spectra of phenylmercury diphenyltriazine PhHgN(Ph)NN(Ph) were studied.

584. MERCURY-ARYL PEROXIDE COMPLEXES

S. D. Lyashenko et al. Doklady AN SSSR, 1979, 248, (4), 883-84

The preparation and some properties of complexes ArHgOOH and ArHgOOHgAr are reported, where Ar is phenyl, dimethylphenyl or trimethylphenyl.

585. MERCURY-IMIDAZOLINE COMPLEXES

A. B. Shapiro et al. Doklady AN SSSR, 1979, 248, (5), 1135-39

The preparation and properties of some Hg imidazoline nitroxyl complexes are reported.

586. MERCURY HALOALDEHYDES AND KETONES

FR 2,412,556. Ste Nat. Poudres et Explosifs. A 23.12.77 as 39,004 P (-)

Hg haloaldehydes α-ketones for use in the production of vinyl esters are prepared by reacting an alkenyl ester of a carboxylic acid with a Hg halide in the presence of water.

587. GALLIUM COMPLEXES WITH ANILINE OR PYRIDINE

D. Raptis et al. Revue Roumaine de Chimie, September-October 1979, 24, 1307-10

The preparation and some properties of aniline or pyridine complexes with tetrachloro- or tetrabromo-gallic acid ($HGaCl_4$ or $HGaBr_4$) are reported.

588. GALLIUM-TRIHYDROXYAZOBENZENE COMPLEXES
V. D. Salikhov et al. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 2963-68
The kinetics of tautomerisation of Ga-trihydroxyazobenzene complexes was investigated.

589. GALLIUM AND INDIUM DIMETHYL MIXED LIGAND COMPLEXES
L. K. Peterson et al. Canadian J. Chemistry, 15.9.79, 57, 2520-22
The reactions of Me_3Ga and Me_3In with indazole or 3-methylpyrazole were investigated.

590. THALLIUM TRIACETATE AS OXIDISING AGENT
P. S. Radhakrishnarmurti et al. Indian J. Chemistry, January 1979, 17A, 97-98
The kinetics and mechanism of ketone oxidation by $Tl(OAc)_3$ were investigated.

591. THALLIUM N-HYDROXYSUCCINIMIDE SALT
A. Paquet. Canadian J. Chemistry, 15.10.79, 57, 2775-78
An efficient preparation of four alkyl succinimidyl carbonates from the Tl salt of N-hydroxysuccinimide and corresponding chloroformates is described.

592. THALLIUM CARBOXYLATES
N. M. Sokolov. Zh. Neorganicheskoi Khimii, 1979, 24, (11), 3125
Melting points were determined for the series RCOOTl, where R is H, Me, Et, Pr or Bu.

593. GERMANIUM DIMETHYL COMPLEXES
J. E. Drake et al. Canadian J. Chemistry, 1.9.79, 57, 2278-84
Photoelectron spectra of complexes Me_2GeX_2 were measured, where X is H, F or Cl.

594. ALKYL (ARYL)-GERMACYCLOHEXADIENES
G. Marke et al. J. Organometallic Chemistry, 20.11.79, 181, 305-28
Dilithium methoxypentadienes react with R_2GeCl_2, where R is aryl or alkyl, to give diaryl- and dialkyl-methoxy-germacyclohexadienes.

595. GERMANIUM-TRIHYDROCARBYLPHOSPHINIMINES
W. Wolfsberger. Chemiker-Zeitung, October 1979, 103, 338-40
The preparation and some properties of 20 complexes of general formula $R_3P{=}NGeX_3$ are reported, where R is Me, Et, Pr or Bu, or R_3 is Bu_2Me, $BuMe_2$ or $PhMe_2$ and X is Cl or Br.

596. GERMANIUM TRIETHYL ESTER COMPLEX
G. A. Razuvaev et al. Zh. Obshchei Khimii, November 1979, 49, 2537-41
Thermal decomposition reactions of triethyl Ge t-butyl butyrate were investigated.

597. TITANIUM-GERMANIUM AND NIOBIUM-GERMANIUM CYCLOPENTADIENYL COMPLEXES
G. A. Domrachev et al. Zh. Obshchei Khimii, November 1979, 49, 2533-36
Thermal decomposition reactions of complexes $Cp_2M(Cl)GeEt_3$ were studied, where M is Ti or Nb.

598. GERMATRANES
M. G. Voronkov et al. Doklady AN SSSR, 248, (1), 134-37
The nmr spectra of 24 complexes of general formula $YGe(OCH_2CH_2)_3N$ were measured.

599. TIN TETRAALKYLS

C. I. Wong et al. J. American Chemical Society 12.9.79, 101, 5593-5604

Electron transfer to Fe(III) complexes from SnR_4 (each R is Me, Et, n-ori-Pr, n-, sec-, or i-Bu or neo-pentyl), $SnMe_3R$ and $SnMe_2R_2$ complexes is reported.

600. TIN-ALKYL OR -ARYL OXO COMPLEX ADDUCTS WITH TITANIUM OR ANTIMONY CHLORIDE

S. P. Narula et al. Indian J. Chemistry, January 1979, 17A, 98-100

The preparation, isolation and characterisation of adducts $TiCl_4.L$, $TiCl_4.2L$, $SbCl_5.L$, $EtSnCl_3.L'$, $Et_2SnCl_2.L'$, $EtSnCl_3.2L'$, $Et_2SnCl_2.2L'$, $SnCl_4.L''$, $TiCl_4.L''$ and $SbCl_5.L''$ are reported, where L is oxobis(triphenyl tin) L' is oxobis(tributyl tin) and L'' is Bu_2SnO.

601. TIN-ALKYL AND -ARYL ADDUCTS WITH AMINE OXIDES

T. N. Srivastava et al. Indian J. Chemistry, February 1979, 17A, 142-44

The preparation and some properties of 25 adducts of Ph_2SnX_2, Bu_2SnX_2 or $(PhCH_2)_3SnCl$ with N-oxides of pyridine, picoline, quinoline, isoquinoline or bipyridyl are reported.

602. TIN TETRABROMIDE-BENZAMIDE COMPLEX

M. van Cauteren-Thevissen et al. Bull. Societes Chimiques Belges, 1979 88, (4), 215-17

Stability constants were determined for $SnBr_4.2$(benzamide) in chloroform.

603. TIN TRIALKYL PEROXY RADICALS

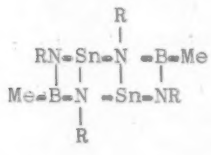
J. A. Howard et al. Canadian J. Chemistry, 15.10.79, 57, 2761-66

The preparation and some properties of radicals $R_3SnO_2^{\bullet}$ are reported, where R is Me, Et, Bu or Ph.

604. TIN-NITROGEN-BORON HETEROCYCLES

H. Noth et al. Chemische Berichte, November 1979, 112, 3672-81

The preparation and some properties of the dimeric diazastannaboretidines



are reported, where R is Me or $SiMe_3$.

605. TIN COMPLEXES WITH o-DIETHINYLBENZENE

R. Nast et al. Chemische Berichte, November 1979

The preparation and some properties of complexes $C_6H_4(C{\equiv}CSnR_3)_2$, $[C_6H_4(C{\equiv}C)_2SnR'_2]_2$, $[\{C_6H_4(C{\equiv}C)_2\}_3$, $(SnPh)_2]_m$ and $[[C_6H_4(C{\equiv}C)_2]_2Sn]_n$ are reported, where R is Me or Ph, R' is Me, Ph or naphthyl or R'_2 is pentamethylene, m is 2, 8 or more than 8 and n is 12-15 or more than 15.

606. TIN-TRIBUTYL CATALYSTS

N. M. Noskov et al. Zh. Prikladnoi Khimii, September 1979, 52, 2078-89

The catalytic effects of Bu_3SnOMe, bis(tributyl tin) carbodiimide and tris(tributyl tin) isocyanurate on reactions between alcohols and organic isocyanates were investigated.

607. TIN ALKYL HYDRIDES

Y. Veno et al. J. American Chemical Society, 29.8.79, 101, 5414-15

The regioselective desulphonylation of allylic sulphones to less stable terminal olefins with Sn tri-n-butyl hydride has been studied.

608. TIN DIMETHYL COMPLEXES
B. Wrackmeyer. Z. Naturforschung, October 1979, 34B, 1464-65
Ligand exchange reactions between $[Me_2SnS_3]$ and $[Me_2SnNEt]_3$ were examined by nmr spectroscopy.

609. METHYLTIN-COBALT CARBONYL CLUSTER COMPLEX
K. E. Schwarzhans. Z. Naturforschung, October 1979, 34B, 1456
The preparation, isolation and characterisation of $MeSnCo_3(CO)_9$ are reported.

610. TIN-ACETANILIDE COMPLEXES
A. Kettrup et al. Thermochimica Acta, September 1979, 32, 171-80
Formation enthalpies were determined for $SnCl_4$ adducts with 20 substituted acetanilides.

611. TIN-PYRIDINE COMPLEXES
H. Fujiwara et al. J. Physical Chemistry, 6.9.79, 83, 2400-04
The complexing of Me_2SnCl_2 with pyridine or bipyridine was investigated by nmr analysis.

612. ALKYL TIN OXIDE CATALYST
GB 2,021,101. Rohm. A:17.4.79: P:28.11.79: C:17.4.78 (DE) as 16,516
A catalyst for the production of substituted (meth)acrylamides from (meth)acrylic esters and suitable amines is a Sn dialkyl oxide, specifically Sn dibutyl oxide.

613. LEAD ARYL TRICARBOXYLATES
H. C. Bell et al. Australian J. Chemistry, July 1979, 32, 1521-30
The preparation and characterisation of the complexes $PbR(OCOR')_3$ (R is Ph, tolyl, biphenyl-4-yl, 2-thienyl, m-methoxyphenyl, R' is Me) is reported. See also pp 1531-50, 1551-60 and 1561-66.

614. LEAD-PYRIDINE COMPLEXES
S. N. Poddar et al. Indian J. Chemistry, January 1979, 17A, 102-04
The stability of Pb complexes with pyridine and picolines was studied potentiometrically.

615. LEAD AND CADMIUM NICOTINATES
S. K. Bhasin et al. J. Indian Chemical Society, December 1978, 55, 1307-08
Formation constants of Pb and Cd nicotinates were determined polarographically.

616. LEAD- AND CHROMIUM-PECTIN COMPLEXES
A. Malovikova et al. Collection Czechoslovak Chemical Communications, October 1979, 44, 2915-27
The ion-exchange behaviour of pectin towards Pb and Cr was studied from the point of view of diet and industrial hygiene.

617. LEAD COMPLEX WITH PYRIDINE DICARBOXYLIC ACID
K. A. Beveridge et al. Canadian J. Chemistry, 15.9.79, 57, 2498-2503
The crystal and molecular structure of dimeric diaquopyridine-2,6-dicarboxylato Pb pyridine-2,6-dicarboxylic acid monohydrate was determined and refined.

618. LEAD AND ANTIMONY ARYL COMPLEXES

A. K. Saxene et al. Indian J. Chemistry, March 1979, 17A, 307-09

The reaction of Ar_6Pb_2 with Ar_3SbY_2 to give Ar_3Sb and $(Ar_3Pb)_2Y$ or a mixture of $(Ar_3Pb)_2Y_2$ and Ar_4Pb is reported, where Ar is Ph or p-tolyl and Y_2 is Cl_2, Br_2, $(NCS)_2$, O or S.

619. LEAD AMINO ACID CHELATES

Y. Khayat et al. J. Inorganic & Nuclear Chemistry, October 1979, 41, 1496-98

Stability constants have been measured for complexes of Pb(II) with four ligands: glycine, L-serine, L-aspartic acid and glycyl-L-leucine.

620. LEAD TETRAAZA MACROCYCLIC COMPLEXES

P. Moore et al. J. Chemical Society, Dalton Trans., 1979, (10), 1486-91

Complexes $PbL(NO_3)_2$, where L is tetra-aza cyclotetradecane and tetramethyl tetraazacyclo-tetradecane have been characterised by nmr techniques, in dimethyl sulphoxide.

621. LEAD CARBOXYLATES

S. O. Adeosun. Thermochimica Acta, September 1979, 32, 119-25

Densities, electrical conductances and viscosities were determined for molten mixtures of Pb acetate and dodecanoate.

622. ARSONIUM YLIDES

G. Cavicchio et al. Gazz. Chimica Italiana, June-July 1979, 109, 315-21

Carbonyl-stabilised arsonium ylides react with tropylium tetrafluoroborate to give the cycloheptatrienyl onium salts.

623. ARSENIC-CONTAINING HETEROCYCLES

A. I. Yanovskii et al. Doklady AN SSSR, 1979, 249, (1), 120-22

The molecular structures of two isomeric diphenyldiazaarsoles were determined.

624. TRIPHENYL ARSINE SULPHIDE

K. A. Kerr et al. J. Chemical Society, Dalton Trans., 1979, (10), 1482-85

Crystals of Ph_3AsS obtained from acetone solution has been characterised for their structure.

625. SUBSTITUTED ARSENIC ACIDS

T. Mallon et al. Z. anorganische Chemie, August 1979, 455, 13-15

The preparation and some properties of tris-(1,2-ethanediolato)- and tris(2,3-butanediolato)-arsenic acids and their amine salts are reported.

626. ARSENIC-CONTAINING ESTERS

L. B. Ionov et al. Zh. Obshchei Khimii, November 1979, 49, 2514-18

The preparation and some properties of esters R(Ph)AsSR' are reported, where R is Me, Et, t-Bu or neopentyl and R' is Et, Pr, Bu or pentyl.

627 ANTIMONY-SCHIFF BASE COMPLEXES

D. N. Vyas et al. Indian J. Chemistry, February 1979, 17A, 151-53

The complexing of Sb with Schiff bases derived from salicylaldehyde and glycine or glutamic acid was studied polarographically.

628. ANTIMONY-ALKOXY COMPLEX ADDUCTS
S. L. Chadla et al. Indian J. Chemistry, March 1979, 17A, 309-10
The preparation and some properties of complexes $Sb(OR)Cl_4.L$ are reported, where R is Me, Et or C_2H_4Cl and L is naphthaldehyde, nicotinamide or triphenyl arsine oxide.

629. ANTIMONY TRIS (β-DIKETONATES)
R. C. Mehrotra et al. Synthesis & Reactivity in Inorganic & Metal-Organic Chemistry, 1979, 9, (5), 491-502
The preparation and some properties of nine new Sb tris(β-diketonates) are reported.

630. BISMUTH POLYAMINOCARBOXYLATES
P. P. Nenova et al. Koordinatsionnaya Khimiya, 1979, 5, (11), 1645-49
The complexing of Bi with triethylenetetraminehexaacetic acid was investigated spectrophotometrically.

631. PHENYL SELENYL CYCLOHEXANONE REARRANGEMENT
S. J. Falcone, M. E. Munk. Synthetic Comm., August 1979, 9, 719-26
2-Carbomethoxy-2-phenyl selenocyclohexanone reacts with Li diisopropylamide to give rearrangement to the Li enolate of 2-carbomethoxy-6-phenyl selenocyclohexanone.

632. PHENYL SELENENYLENONE SYNTHESIS
G. Zima, D. Liotta. Synthetic Comm., August 1979, 9, 697-703
Cyclohexenone and enones generally react with phenyl Se chloride to introduce a PhSe group, e.g. giving phenyl selenenyl derivatives.

633. SELENIUM-CONTAINING PYRYLIUM COMPOUND
US 4,173,473. Eastman Kodak. A:6.7.77 as 813,371: P:6.11.79
Se pyrylium salts and derivatives having a trimethine linkage containing an aryl substituent attached to one or more C atoms of the trimethine linkage are radiation sensitive additives for photoconductive compositions.

634. BENZYL ISOSELENOCYANATE PRODUCTION
H. Suzuki et al. Synthesis, September 1979, 705-7
The isomerisation of selenocyanates to isoselenocyanates is effected by irradiation in acetic acid.

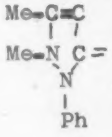
635. SELENOCARBAMATE SYNTHESIS
K. Kondo et al. Synthesis, August 1979, 597-98
Amines, CO and Se are reacted and treated with alkyl halide to yield dialkyl selenocarbamates.

636. SELENOACETAL CLEAVAGE
A. Burton et al. Synthesis, November 1979, 877-80
The cleavage of methyl and phenyl acetals of undecanone, butyl cyclohexanone and undecanal was investigated using metal salts, hydrogen peroxide and benzene seleninic anhydride.

637. SELENIUM COMPLEXES
G. A. Kalabin et al. Zh. Strukturnoi Khimii, July-August 1979, 20, 617-21
The nmr spectra of 19 selenothers and their derivatives were measured.

638. SELENIUM- AND ARSENIC-HYDROCARBYL-AMIDE COMPLEXES
I. M. Epshtein et al. Izvestiya AN SSSR, 1979, (11), 2487-93
Some electron donor properties of PhSeNEt and Pr_2AsNMe_2 were investigated.

639. SELENIUM-PYRAZOLYL-ALKANES AS LIGANDS
SU 681,060. A. V. Dolgorev. A:3.9.76 as 2,412,957: P:25.8.79
New complexes L-SeC(R)IR')Se-L are useful reagents for the spectrophotometric determination of Au, Mo or Te, L is Me-C=C



640. SELENONIUM SALT
SU 672,198. V. S. Epifanov et al. A:29.12.77 as 2,575,410: P:8.7.79
Tritolylselenonium chloride is obtained by reaction of toluene with SeO_2 in concentrated sulphuric acid medium, followed by treatment with sodium chloride.

641. CHALCOGEN PHENOXA COMPLEXES
G. C. Pappalardo et al. J. Organometallic Chemistry, 20.11.79, 181, 329-34
Carbon-13 NMR and CNDO studies on dibenzodioxin, phenoxathiin, phenoxaselenin and phenoxatellurin have been carried out and only the shifts of C atoms bonded to the heavier chalcogen atoms shown an upfield trend in the sequence O, S, Se, Te.

642. TELLURIUM METHOXYPHENYL OXIDISING AGENT
D. H. R. Barton et al. Chemical Communications, 1979, (17), 755-56
Bis(p-methoxyphenyl)TeO is a mild and highly selective oxidising agent for the conversion of thiocarbonyl groups into oxo analogues and for the conversion of thiols into disulphides.

643. TELLURIUM BUTYLCARBONYLOXYALKANE COMPLEXES
A. G. M. Barret et al. Chemical Communications, 1979, (15), 645-47
Reaction of t-butyl (chloromethylene) dimethyl ammonium chloride with alcohols and sodium hydrogen telluride gave 3β-t-butyl tellurocarbonyloxy-5α-cholestane, t-BuC(=Te)OR. Some reactions of the complex are reported.

644. TELLURIUM ETHOXY CYCLOOCTENYL TRICHLORIDE
J. Bergman et al. J. Organometallic Chemistry, 20.11.79, 181, 335-47
The molecular structure of 8-ethoxy-4-cyclooctenyl Te trichloride has been determined and its relevance to the TeO_2 oxidation of alkenes postulated.

645. TELLURIUM-CONTAINING HETEROCYCLE
C. Knobler et al. J. Organometallic Chemistry, 2.10.79, 178, 423-31
The crystal and molecular structure of α-1,1-diiodo-3,4-benzo-1-telluracyclopentane $C_8H_8TeI_2$ was determined and refined.